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A Lecture
ON
FOREIGN BODIES IN THE AIR-PASSAGES.

Delivered at the Hospital for Consumption and Diseases of the Chest, Brompton,

BY RICKMAN JOHN GODLEE, M.S. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON TO THE HOSPITAL.

GENTLEMEN,—It is said that the class of cases now treated at this hospital is not quite the same as it used to be in my time, and that my successor does not meet with the same variety that came under my care in the days in which any disease that could possibly be considered to be included within the walls of the thorax was considered to be suitable for treatment; and even that definition was allowed some freedom of interpretation. I was, therefore, rather puzzled when asked to deliver one of this course of lectures as to what subject would be thought to be a proper one on which anything new could be said, and probably that which I have chosen is not often illustrated here, unless it may be when the presence of a foreign body has not been suspected, or when one has remained so long in the lung before its removal that serious, if not permanent, damage has been produced.

The subject is one, however, in which great advances have been made within recent years, and although these advances have not come so much from general surgeons as from the laryngologists, they are of great importance for both surgeons and physicians, and perhaps demand the most serious attention of all from general practitioners, with whom it often rests, either by taking prompt action or by interposing delay, to afford their patients quick relief or to allow them to drift into a condition in which no medical or surgical aid is of much use.

This point needs emphasising, because it is well known, as was pointed ont in my lectures on this subject at this hospital in 1896, that when a foreign body has passed into one of the main bronchi it may for a time cause such slight symptoms that the patient and the medical man can hardly believe it to be really there. It is true in my experience of such a body as a collar stud, a piece of bone, an ear of barley grass, a pin two inches long, or the end of a vulcanite tracheotomy tube. There may, indeed, be complete absence of physical signs in the case of such an object as a pin, or if it be a smooth thing like a bead there may be no departure from the normal physical signs except such as are due to a slight deficiency of entry of air into that part of the lung which corresponds to the partially obstructed bronchus. If, however, it be a piece of bone or a piece of meat, decomposition at once sets in, and then the mischief which has started in the lung may be very serious indeed, and of a progressive character.

CLASSIFICATION OF FOREIGN BODIES.

It has been suggested that such foreign bodies as enter the air-passages should be divided into hard and soft, which is a useful enough, though by no means an accurate, classification. It is useful in cases where immediate removal is to be attempted. If a hard object can be caught by the forceps, and the forceps hold, out it comes if it does not break, but a soft object may be nibbled at again and again without materially diminishing its dimensions. But there are other classifications that might equally well be made; for example, into living and dead. We have all heard of the leech and the round worm that have made their way into the trachea, and I almost envy the emotion that will be experienced by the first observer who sees such an animal or the grub of a dipterous insect through the bronchoscope. Seeds such as those of peas and grass are also, of course, alive, and may swell and perhaps germinate, and these are the foreign bodies that carry in along with them other forms of life, such as the organisms that produce actinomycosis, or the various forms of mould which, when they have gained a footing in the lung, produce such frightful ravages. If one were to stretch the definition of foreign bodies and include amongst them substances like iron filings or minute fragments of stone or coal, it is clear that a great many more diseases would have to be discussed than naturally find a place in this lecture.

Again, there are some foreign bodies which, when once they have come to a standstill, do not shift their position, such as a tooth sitting astride on the septum between two separating bronchi, whilst there are others which though dead have a proper motion, which may conduct them any distance and in any direction. Needles will find their way into the heart or into the distant parts of the body, and blades of awned grass or corn, which the unwary are so fond of putting into the mouths, start on their travels almost like living creatures. This specimen was extracted from the back of a small child who was supposed to have had whooping-cough, though the nurse knew that a piece of grass had been "swallowed." The medical man thought the emerging grass was the core of a boil, and was rather astonished when the whole ear was extracted by his forceps.

MOVEMENTS OF THE BRONCHI.

It may be asked why such objects should make these journeys at all? We are so unconscious of any of the movements inside our own bodies that it is difficult to imagine the churning and pulsating and elongation and shortening which are constantly taking place throughout our economies. Moreover, if we start with the idea that the root is a very fixed part of the lung, it might be thought that a foreign body which had once reached this haven would remain quietly at anchor there, but radiography and the bronchoscope have upset all these notions, and we can now submit to the scrutiny of the eye questions which previously were only matters of reasoning or surmise.

Dr. Arthur Keith has thought and written much on the movements that take place within the chest, and it is from his writings and demonstrations and from conversations with him, as well as my own observations, that the following statements are founded.

I am not now concerned with the differences in the movement that depend upon the age or sex of the individual, though they are important; but, speaking generally, it may be said that the only fixed part of the lung is the true apex, that is, the part that corresponds to the neck of the first rib. The central tendon of the diaphragm is not, as we used to think, almost stationary, but moves downwards about 10 mm. (2-5ths inch) in ordinary inspiration, and 30 mm. (1¼ inches) in deep inspiration, as is easily seen on the radiographic screen. It also moves forwards nearly to the same extent as the lower part of the sternum moves from the spine, this movement being accounted for by the shortness of the muscular fibres in front, and by their length and abundance behind. Both the upward and downward and the antero-posterior movements are accompanied by corresponding movements of the heart and of the roots of the lungs, though as the position and the shape of the heart vary, and as the pericardium is not a rigid sac, the upward and downward movements of the roots of the lungs are not so extensive as the movement in these directions of the central tendon of the diaphragm. The antero-posterior movements are also less than those of the sternum. It is interesting to remember that the two pleuræ touch in front of the heart, and often also behind it; there is, in fact, both in front and behind, a sort of meso-pericardium, and these two folds of pleura are extensible, and so allow during inspiration of the thickening of the thin anterior borders of the lungs and of the inflation of their thick posterior parts. It has been pointed out how, if the chest be examined through the screen obliquely from, say, the left front to the right back, the shadow of the heart is continuous with that of the spine during expiration, whereas during inspiration a broad band of transparency intervenes between the two shadows corresponding to the fully inflated two lungs; and I am able to show you some beautiful skiagrams kindly lent me by Mr. Schall, in which, in a direct side-to-side view, the same band of light appears between the heart and the spine during inspiration. They afford a very clear demonstration not only of the fact but of the very considerable amount of this movement.

But besides this general movement of the roots of the lungs, there is another special movement—i.e., a movement of the bronchi. For as the upper part of the lung is more fixed than the lower, there is some resistance to the traction downwards of the lower part. It might have been thought that the result would be that the

angle between the two main bronchi would have been diminished. But there is another force which modifies this angle—namely, the inflation of the masses of lung which are situated between them and the heart, and which increase considerably in volume during the act of inspiration. This would tend to widen the angle, and I am told by Dr. Keith that he believes that the angle is as a matter of fact actually widened during inspiration. I have tried to see some movement of this kind in looking through the bronchoscope, but have not been able to detect it. I can imagine it might be very effectual in aiding the movements of the ear of corn.

As we are now only occupied with the roots of the lungs it will not do to enter into a discussion of the particular movements of the various parts of that organ, but I have been struck with Dr. Keith's observations that, again speaking generally, the direction of the bronchi indicates the direction in which that part of the lung moves. It suggests that perhaps one use of the muscular fibres in the bronchi is to shorten up these tubes after they have been extended during inspiration, though it is believed that the principal action of these muscles is to diminish the calibre of the bronchi. No shortening or lengthening can be seen by direct observation. To the eye the beautiful alternative red and white bands do not appear to change their respective widths, and indeed it was scarcely to be expected that any change would be actually visible, although one knows that with every breath each tube is being first lengthened and then shortened to a certain extent.

I do not know that all the movements that are caused by the simple act of breathing have now been mentioned, but it is clear that during coughing, sneezing, yawning, and vomiting they are all exaggerated. In the act of coughing I have also seen a most surprising sight on one occasion, when looking at the orifice of a secondary bronchus after manipulation for the extraction of a foreign body had been some time in progress. The patient made an expulsive effort, and I saw this orifice close completely. I do not say that this was effected solely by the contraction of the bronchial musculature, because there are more or less incompressible things in the neighbourhood that by their pressure might help to close it, but I think it is a most suggestive fact for those who are studying what occurs in spasmodic asthma, and that it helps to explain the sudden relief to the wheeze that accompanies a common bronchitis of the larger tubes when such a substance as menthol is inhaled.

Respiration is not, however, the only factor in the movements of the main bronchi. Every beat of the heart makes the left bronchus move almost vertically up and down $\frac{1}{8}$th inch or more. This may be actually seen. The direction in which the right bronchus moves I do not know, but presumably it is more inwards and outwards. It is almost dreadful to see the cardiac and arterial movements when examining with the bronchoscope, for the main bronchi are, like Gobbo's conscience, literally "hanging about the neck of the heart," and it is practically certain that the smaller bronchi have a similar, though smaller, movement transmitted to them by their accompanying arteries.

ASEPTIC AND SEPTIC FOREIGN BODIES.

The automatic movement of the ear of barley grass has led us a long way, but I think there is no need to go further and to ask if deglutition has any effect on the movements of the bronchi or to refer to the general movements of the body. Enough has been said to account for the journey, not only into the smaller bronchi, but to the periphery of the body. And so, returning to the question of the classification of foreign bodies, we must consider what is, perhaps, the most important of all, namely, of those which may be called aseptic, from those which are either septic at the time of introduction, or which quickly decompose or form favourable niduses for the growth of micro-organisms. Amongst the latter are included pieces of flesh or other kinds of food, which may gradually become disintegrated; and worse than these, fragments of bone or cloth or cotton wool, which are practically indestructible. I have seen so many cases of bronchiectasis and pulmonary abscess following at a short interval on some nasal operation, as to make its almost certain that something like a fragment of an adenoid growth or some morsel of cotton wool which has been inspired at the time, has been the starting-point of the disease, and I therefore have never adopted the semi-erect position for these operations. The risk of such an occurrence must surely be less when the head is hanging over the table, and I therefore commend this consideration to those who are specially engaged in this line of practice.

FOREIGN BODY IMPACTED IN THE TRACHEA.

A foreign body which has entered the larynx may, of course, stick at the rima glottidis, but unless it is very small and sharp like a fish bone, or a needle, it is not likely to remain there long, the spasmodic cough which ensues leading either to its immediate expulsion or to rapid suffocation of the patient. If neither of these events occur there should with modern methods be no great difficulty in its extraction. But sometimes it may lodge immediately below the vocal cords. This may mean that it has at first passed more deeply and then by expiratory efforts been driven back against the glottis from below and stuck there. I have seen at least two such cases; one was that of a sharp fragment of shell which I extracted through a tracheotomy wound, and the other was that of a grain of corn which lodged between the thyroid and the cricoid cartilages, and formed an abscess which was opened externally. The subject of this accident was intended for a university career, which, on the appearance of the abscess, he proposed to relinquish because it was thought to be tuberculous.

When one considers the narrowness of the chink between the vocal cords it might have been thought that any object that was small enough to pass the rima glottidis would not have been large enough to stick in the trachea. Such, however, is not the case—plum stones, and even more unlikely things, have been known to run the gauntlet and to have become impacted in the trachea. There is one such specimen in the Museum of the Royal College of Surgeons of England, taken from the body of a lunatic whose death was the immediate consequence of the mishap. I may observe in parenthesis that there are many recorded cases of foreign bodies which have found their way into the air passages of lunatics, as indeed is not very surprising. It would require very prompt action to extract such a body as this before death supervened. And some of the things inspired have been more extraordinary still—screws, long pins, a needle and thread, the tail of a herring, large pieces of meat and vegetables, beans, nails, teeth, the peg of a peg-top, a necktie holder, and a whistle, which caused as strange sounds to be produced in the patient's chest as those which startled the parents of Dickens's "fat boy."

One can imagine many of these sticking in the trachea; but the majority pass lower down and most of them lodge at the end of one or other of the main bronchi, perhaps three-quarters of them in the right bronchus.

FOREIGN BODIES IN THE BRONCHI.

Since the classical observations of Aebey it has been recognised that the reason why most pass into the right side is because the lower end of the trachea after turning slightly to the right becomes almost directly continuous in direction with that of the right bronchus, which is the larger of the two. This is clearly shown in metal casts and also by means of radiograms. After the foreign body has reached the end of the main bronchus, if it is small enough, it may pass in any direction, and although the main bronchus is continued down to the base of the lung with a slight convexity outwards on the right side, and a considerable convexity on the left side, whilst the other tubes are branches, dorsal or ventral from this main trunk, it will not be forgotten that these branches are so large that until Aebey set us right it was the custom to describe the bronchi as dividing and subdividing dichotomously. It is not, therefore, to be expected that such small round bodies as glass beads would always enter that particular one of the smaller bronchi which we recognise from the study of comparative anatomy to be the main stem. It is probable that it could equally easily pass into others which follow pretty nearly the same direction, and this makes the search more difficult and more indefinite.

USE OF X RAYS.

The expectation that a foreign body will be shown by radiography or seen with the screen is often disappointed. If it should be of metal or of glass, it will be apparent; but if of bone or ivory it will most likely be indistinguishable from the ribs, and if of meat or vegetable it stands to reason that it will not show up at all. It is important that radiograms should be stereoscopic, and it is theoretically best that they should be instantaneous and taken at the moment of

full inspiration. If not instantaneous, the image is sure to be blurred, and if not taken in full inspiration the lung will not be as transparent as possible. But there are many difficulties about instantaneous radiography; and so both of these directions may be dispensed with in the case where the object is of easily recognisable shape and opaque to the X rays.

By means of instantaneous radiograms it is now possible to show the course, not of the main bronchi, but of their accompanying vessels. I have the opportunity of exhibiting a number of beautiful skiagrams lent me by Mr. Schall which show these radiating lines. The bronchi themselves cannot cast a shadow in their normal condition; they are mostly made of cartilage which does not obstruct the X rays, and they contain air which has the same property. They, therefore, would only appear in a skiagram as bright lines, and only thus in an imperfectly expanded or collapsed lung. It seems clear, however, that these radiating lines actually depend upon the vessels. What I have just said applies, however, only to healthy bronchi. It does not follow that they will not produce shadows if they are filled with pus.

Much has been written on this subject. The last paper on the so-called "Hilus-Zeichnungen"—"hilus markings"—I have seen is by Eug. Fränkel and Alex. Lorey.[1] These radiating lines appear as unrecognisable blurred streaks in radiograms obtained by a long exposure, and their appearance is often much confused by opacities which depend upon calcareous glands, or perhaps even by glands containing large quantities of carbon. It is well to make oneself familiar with these appearances before committing oneself to an opinion about foreign bodies, and it is wise before making use of the screen to form a clear mental picture of the direction in which the different parts of the lung move. The observer should also make sure that there is no opaque substance on the surface on the body which could possibly be mistaken for something in its interior.

Results of Foreign Bodies in the Bronchi.

The changes produced in the lung and air passages depend, as has been hinted, on the nature of the foreign body and the place where it lodges. I will not dwell upon the result of the impaction of an object in the trachea sufficiently angular to stick there, but not large enough to obstruct the passage of air. It will probably give rise to a constant cough and set up inflammation of the surrounding parts and a descending tracheitis, but even this is not certain.

A sharp object like a long pin may become fixed in one of the main bronchi and cause no symptoms for months (probably longer) except a slight cough and give rise to no physical signs except a few crepitations behind the sternum. A tube like a tracheotomy tube may certainly for some days produce only similar insignificant results, whereas even such a small and rounded object as a collar stud may in a few weeks start such changes in the bronchi and lung as may lead to incurable bronchiectasis. Changes of this nature follow very quickly on the introduction of pieces of bone and other putrescible substances. It is a striking object-lesson to see and to smell a piece of bone that has been inspired only a few days before. In such a case it is generally possible by careful auscultation to determine which bronchus is blocked, as the entry of air is diminished in the corresponding part of the lung. This may be a whole or only part of a lobe or the whole lung. The movements of a corresponding part of the chest are diminished and crepitations may be heard over the affected area. It is not long before the mischief extends to other parts, especially the base of the lung, and in the course of time, if nothing worse happens, bronchiectasis is sure to be established at the base.

I have long made it a rule in cases of unilateral bronchiectasis, especially in children, to make careful inquiries as to the possibility of a foreign body having been inspired. People forget, strange to say, that the accident has happened. Parents and nurses not only forget, but sometimes have never noticed, its occurrence; it has been taken just for a fit of coughing, and no attention has been paid to it. I have known a father, who was a medical man to boot, forget that he was feeding his own child with mulligatawny soup, during which the infant choked on inspiring a piece of bone, and subsequently developed what was supposed to be an empyema. I have also known a boy say nothing about the fact that he had inspired the peg of a peg-top for fear of being punished. So we should never fail to pay the greatest attention to any spontaneous evidence on the part of the patient, for patients are more likely to be right than wrong, and yet there is a tendency to look upon such stories as fairy tales.

If the foreign body be removed or escapes, recovery may be complete if the lung has not been much damaged, but not infrequently the resulting bronchiectasis is permanent, though it is not necessarily progressive, and the patient may live for many years. Some of the most disastrous effects are produced by ears of corn. They may cause pneumonia and acute abscess, and such an abscess may extend into the pleura or through the diaphragm. This is illustrated by a preparation taken from a patient on whom I operated in this hospital for what was at first supposed to be empyema. An object that completely blocks a bronchus may give rise to that condition of collapse and gangrene of a corresponding part of the lung that is recognised as following an obstruction to a bronchus from pressure upon it by a tumour such as an aneurysm.

In considering the remote results of a lodgment of foreign bodies in bronchi, one must not forget the possibility of tubercle being engrafted upon the mischief caused immediately by the accident. Such occurred in the patient from whom this specimen was obtained, of a tooth impacted in a bronchus, who was operated upon in this hospital by Mr. Marshall and myself many times. It should also be added that a recognisable percentage will probably die from cerebral abscess, seeing that practically all of them develop bronchiectasis, and cerebral abscess is one of the recognised complications of this dangerous disease.

Methods of Treatment.

Let us now consider the old-fashioned methods of dealing with these cases which may still be employed if modern instruments are not at hand. First, it must be noted that it is unsafe to invert and shake the patient before doing tracheotomy. Brunel's device of a couch on which he was to be inverted in order to favour the escape of a half sovereign which he had inspired is a classic in medical literature, but it is not an example to be followed, for the coin might have become impacted and so closed the career of the distinguished engineer, but he succeeded in getting rid of it *per vias naturales*, as many others have done with objects of still larger dimensions. Tracheotomy should, therefore, be performed if inversion is going to be practised, and then the patient may be turned upside down, his knees may be bent and passed over the shoulders of one or two people, and an effectual shaking carried out.

If this does not answer, or before doing it, instruments of various kinds may be introduced through the tracheotomy wound into either bronchus. Perhaps the best are such a pair of forceps as I show you which are small, bent to a suitable curve, and so arranged that when the points are opened to a slight extent the shanks are at first diminished in size. They are made on a plan first, I believe, devised by Lord Lister for removing stones from the prostatic urethra, and it may interest you to see the actual pair which he first had made for this purpose.

Another very simple apparatus may be made by bending a piece of stoutish silver wire into the shape shown. This forms an available hook which can be easily directed at will and which cannot do any damage. It will be found useful in the case of objects like tracheotomy tubes, beads, peas, &c. Then Durham's laryngeal forceps is a handy instrument, and indeed it is something of this sort which is usually employed with a bronchoscope. The tracheotomy should, of course, be a low one.

But while this method is one which may be employed by any surgeon and demands no special skill, it has the disadvantage of involving a tracheotomy with its accompanying disagreeables and risks. The introduction of the bronchoscope, which has created a revolution in the treatment of diseases in the air-passages, seems likely to transfer the treatment of these cases, at all events at first, from the general surgeon to the laryngologist.

Bronchoscopy.

This is not the place to enter into a description of the instrument.[2] It is 29 years since Mikulicz first wrote about

[1] Fortschritte auf dem Gebiete der Röntgen-Strahlen, 1909-10, p. 155.

[2] It will be found most fully described in W. Brüning's "Die direkte Laryngoskopie, Bronkoskopie, und Oesophagoskopie."

direct gastroscopy and œsophagoscopy, and before his time Kussmaul had introduced straight tubes into the œsophagus and trachea. Gottstein and others had also worked at the subject, but it is clear that to Killian and Brüning is due the credit of having evolved a practical instrument, by means of which a straight tube can be introduced not only into the trachea and the main bronchi, but even further if small enough tubes be used, as it is provided with a cunningly devised arrangement of mirrors to throw the light to the end of the tube, whilst leaving room for the introduction of swabs, probes, forceps, and other instruments.

Cocaine, with which all are now so familiar that it is difficult to realise that to many of us it seems a modern invention, is called in aid to diminish bleeding and do away with coughing; and now, if there be not much secretion, it is possible to see and, if it be removable, to remove with apparent ease, foreign bodies which are situated not further down than the end of the main bronchi. Not only so, but there are many cases on record where still smaller tubes have been passed into some of the smaller bronchi, and the foreign bodies extracted from them. As long as the idea prevailed that the root of the lung was fixed and the trachea and bronchi were more or less rigid tubes, the thought of such a proceeding would have appeared preposterous, but the facts I have already brought forward make it easy to understand that these tubes are not only subject to perpetual natural movements, but also that they can be readily shifted about at the will of the operator.

The employment of this apparatus can best be illustrated by recording the last two cases of foreign bodies impacted in the bronchi that have come within my notice.

CASE 1.—The first was that of a young woman who had been sporting with her fellows while holding a pin two and a half inches long with a glass head in her mouth. Whilst laughing the pin passed into her windpipe, and entered the left bronchus. The symptoms at the time were not severe, and she soon ceased to trouble about it, but a certain amount of cough remained, and after a time she applied to her medical man to examine her, who, finding only a few crackles along the left side of the sternum, sent her to the hospital with the observation that there was a story of a pin having been swallowed, but that he supposed it was the usual thing—incipient phthisis. A radiogram showed the pin lying rather obliquely, but not far removed from the horizontal position just above the heart shadow. On examining it, it will be seen that the image is blurred, the blurring depending mostly, but not altogether, upon the movements of the heart, to which reference has been made. Sir Thomas Barlow, under whose care the patient had been admitted to University College Hospital, asked me to see the patient, and I was obliged to suggest calling in the help of Mr. H. Tilley, who has reported the case,[3] though I could very likely have removed the pin through a tracheotomy wound. She was anæsthetised in the recumbent position with the shoulders raised and the head thrown well back. He passed the tube with apparent ease through the larynx and down the trachea, and then, watching all the while the progress of the lower end, he directed it into the left bronchus. The pin was at once apparent. He then passed down the long forceps and seized the pin. The difficulty of the operation now began, for the point of the pin had become so firmly fixed in the bronchial wall that it seemed as if it would be impossible to draw it out, and the question was whether it was safe to continue pulling, and if this was done, whether the grip of the forceps would hold. It was decided that he should make the attempt, and after a trial or two the pin broke across, and one half of it was removed. By this time a certain amount of bleeding had occurred and there was a good deal of spasmodic contraction of the bronchi. It was on this occasion that I saw that strange sight of the closure of one of the secondary bronchi. But it was no longer possible to see the remaining half of the pin, and we were reluctantly compelled to allow the patient to be sent back to the ward. She was, of course, for the next few hours in a somewhat perilous position, and I am not sure that the right practice would not have been to perform tracheotomy at once, though that would have marred the artistic success of the particular form of treatment. However, all went well; she vomited after the operation, and during one of the attacks the other half of the pin was safely expelled and the patient made a good recovery, but one cannot help feeling that there was a certain amount of what may be called luck in the *dénouement*, for the pin might have stuck in the larynx and suffocated her. She was, however, in the hospital, and tracheotomy could have been performed at any moment. I do not think one would be justified in leaving a private patient without some competent surgeon on the spot; it would have involved too much risk, but after a tracheotomy there is practically little or no danger.

[3] Transactions of the Royal Society of Medicine.

While indicating the advantages of this method of treatment this case also shows one of the difficulties and dangers. For a further illustration of them the reader is recommended to consult the very elaborate article by Gottstein,[4] where he will learn how knowledge and experience increased at the clinique at Breslau, leading to the overcoming of the many preliminary difficulties. In many of their cases the performance had to be carried out through a tracheotomy wound (untere Bronkoskopie), but I imagine that the necessity for this will become less and less now that the technique has been so much improved and others are able to benefit by the experience of the pioneers.

CASE 2.—The second case was an unmitigated success. It was that of a young lady who, whilst eating some mutton broth, swallowed a piece of bone the wrong way. She was foolish enough to ask the advice of a chemist, and he had the hardihood to try to push it down with the handle of a tooth-brush. A spasmodic cough quickly set in, and lasted for two hours. The medical man who was called in could naturally see nothing; she went on coughing more or less continuously for four days, and after ten days came to London with a temperature of 100° F. A very indefinite result was obtained by an X ray photograph, and when I saw her four days afterwards, the temperature was 101° in the morning and 102·5° in the evening. There were a little deficiency of movement in the right lower lobe and a slight deficiency of the entry of air into this part of the lung. A very few crepitations were also to be heard. The cough for the moment was in abeyance, but I was told that several attacks had occurred in the course of the day. The physical signs were so slight that if one had not been aware that such is often the case in the early stages of this condition, one might have been excused for counselling delay; but I strongly urged that Mr. Tilley should be asked to see the patient next morning, and in this case the piece of bone was readily demonstrated to us at the lower end of the right bronchus, and was removed in the course of a few minutes with forceps. Already after ten days' residence in the bronchus it was soaked with pus and horribly offensive. This patient has made a complete recovery.

EXPLORATORY OPERATIONS.

Supposing it be impossible to remove the foreign body by any of the methods I have described, and that it be thought that it has made its way by a process of ulceration into the actual lung tissue, attempts may be made to discover it and remove it by means of an incision into the pleural cavity. I have only once made this attempt, and that was not successful. It was in the case of the boy with the peg-top before referred to. I made only a small opening into the pleura, introduced one finger, and felt as completely as I could over the back of the lung. But it was before the days of the X rays, and we did not even know where the piece of iron was or even for certain that it was there at all. Even without the employment of the Oberdruck und Unterdruck methods which have recently been introduced from Breslau, it would be justifiable, I think, to make a larger opening in the pleura in order to conduct such an exploration, because it is well known that if the superficial tissues be accurately closed the pneumothorax which has been caused will be rapidly absorbed.

I would remind you of what is meant by the Oberdruck und Unterdruck methods with which the names of Brauer and Sauerbruch are respectively associated. In the former case the head of the patient is inclosed in a hermetically sealed chamber which may or may not contain also the hands of the anæsthetist. In either case the anæsthetic is supplied at a pressure slightly above that of the normal atmosphere. In Sauerbruch's apparatus, the body of the patient and the operator are inclosed in a large chamber in which the

[4] Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, Dritter Supplementband, Jena, 1907, pp. 279, 415.

pressure is below that of the atmosphere, whilst the patient's head and the anæsthetist are outside. It is easy to see that by either of these methods it will be possible to regulate the extent to which the lung recedes from the chest wall when the pleura is opened, and also, when required, to inflate it again so as to bring it in contact with the chest wall. But for our particular purpose it has this defect, that if one of the large bronchi is opened the physical conditions are obviously altered and the control over the lung could no longer be maintained. This objection does not, however, apply to cases where the foreign body is in the substance of the lung and where it may be possible after its extraction to hermetically close the incision in the lung by which it has been removed. But another objection at once suggests itself—namely, that the portion of the lung incised is sure to be septic, and therefore it must be a dangerous thing to complete the operation by sucking out the lung and then closing up the chest wall. Or, if not dangerous, it is at all events very likely to be followed by a septic empyema. The safest plan would be, if it were possible, to draw out the lung to the opening in the chest wall and secure it there by stitches, while at the same time accurately closing the pleura; in fact, treating it like a pulmonary abscess. It does not seem likely that these two methods would be largely employed in dealing with this class of cases. At present the apparatus is very costly, and of the cheaper forms which have more recently been devised, it does not appear that any as yet have been placed upon the market.[5]

A Presidential Address
ON
THE PRECIPITIN TEST IN MEDICO-LEGAL WORK.

Delivered before the Section of State Medicine, Royal Academy of Medicine in Ireland, on Jan. 28th, 1910,

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1. NATURE OF PROBLEM.

GENTLEMEN,—In medico-legal work it is often of great importance to ascertain the source of a blood-stain—the species of animal that furnished the blood of which the stain is composed.

Until the method of which I now desire to speak came into use, the difficulties in the solution of the problem as to the origin of a given blood-stain may be described as practically insuperable. It must be borne in mind that in medico-legal work, where the life of a fellow-man hangs in the balance, nothing short of absolute certainty ought to suffice, and the only method hitherto available—the microscopic appearance of the blood corpuscles—falls far short of yielding the absolute certainty required. The stain when submitted for examination is practically always dry and has been so for days or weeks, not infrequently for months or years. The erythrocytes have become fused together, their outlines indistinct and distorted, their substance closely adherent to, or entangled in, the stained material.

In this country the mammals the blood of which has most usually to be distinguished from that of man—viz., the ox, horse, sheep, pig, goat, and rabbit—possess red corpuscles differing so slightly from those of man that only a skilled microscopist, well versed in micrometric work, could hope to distinguish them with certainty from those of man in the perfectly fresh condition. There is no difference in shape, and the size varies within the narrow limits of a few microns. The red corpuscles of man average 7·7 μ, those of the horse 5·6, of the ox 5·6, of the sheep 4·5 to 5·0, of the goat 4·25, of the pig 4·6 to 6·0, and of the rabbit 7·0 to 7·5. In the fresh preparation such differences are, of course, quite appreciable, and may be relied upon when a sufficient number of unaltered corpuscles of each kind are available, so that a well-grounded average value may be determined. But how different is the case in medico-legal work!

Speaking from personal experience of many cases which I have examined, I can say that it is extremely difficult to obtain from stains dried on fabrics or solid surfaces isolated corpuscles in a condition satisfactory for micrometry. Much depends on the fluid used for isolating the corpuscular elements. A large number of formulas have been suggested, of which the best that I have tried is a 32 per cent. solution of caustic soda or potash. But even careful maceration in this fluid yields too many forms, deformed in shape and differing so widely in size, that even with stains of known origin it is difficult to convince oneself that any reliable distinction can be drawn by the aid of the microscope—and this, too, in stains that have only been quite a short time dried—a few hours in the incubator.

It is a commonplace of the books that the circular non-nucleated erythrocytes of the domestic mammals can be readily distinguished from the larger, elliptical, nucleated erythrocytes of birds, reptiles, and fishes, and a mere glance suffices to tell the difference *in the fresh preparation*. But when we come to the conditions that prevail in actual practice, the distinction is far from being such an easy matter as would at first sight appear. Shape and size may be veiled by distortion; nuclei when present may disappear or become hard to recognise; when absent, may be simulated by highly refractive granules or dark central areas. Attempts to wash out the stains with water may have produced hæmolysis. From many blood-stains I have failed to isolate any red discs that could be relied upon to supply an answer to the question, Was this blood mammalian?—much to the surprise of jurists who had been led by the statements in the books to suppose that so much at least could be certainly ascertained and deposed to on oath.

We have advanced a long way since 1900, when the diagnosis of mammalian blood was the highest limit of certainty attainable by the medical jurist. Two cases that have lately occurred in my own experience may serve as examples of what can now be accomplished, thanks to the method of sero-diagnosis which I am about to describe. The clothes of a man who was accused of committing a murder having been submitted to me for examination, I found on one article only, the cap, a stain of blood. It was about the size of a threepenny-piece, and appeared to be a single drop which had fallen on the cap from above, and dried on the cloth undisturbed. The stain had evidently been there a considerable time, for on microscopic examination of scrapings macerated in 32 per cent. soda the red corpuscles appeared so shrivelled and distorted that I could come to no conclusion as to their origin, merely noting that they were of mammalian character and seemed a little small for those of human blood. It did not, however, occur to me at the time that they were of other than human origin. On applying the precipitin test, I found that they gave the reaction characteristic not of human but of horse blood. This result I duly reported, giving it as my opinion that the blood was of equine origin. On subsequent inquiry it turned out that the accused man was in the employment of a large horse-dealer, and was frequently engaged in assisting at operations performed on horses, more especially in the region of the mouth; so that a drop of horse blood might readily have fallen unobserved on to his cap and dried there.

The second case was that of a man accused of a particularly brutal murder. On his "leggings" and trousers I detected a number of blood-stains, also on a knife which was found concealed in moist earth and was conclusively traced to the prisoner. A witness who remarked the appearance of the prisoner's knife, when he took it out to cut some twigs for a broom, was told by him that he had been killing a goat. From each of the articles mentioned I succeeded in obtaining a sufficiency of extract for the application of the test, and at once obtained the typical precipitation reaction with human antiserum, and a negative result with the other antisera against which I tested it. The human origin of the stain was thus proved. The murderer, whilst awaiting trial, confessed his crime, and has since suffered the extreme penalty of the law.

2. GENERAL NATURE OF PRECIPITIN TEST.

I will now briefly state how this valuable test originated. Its history will explain how it was that I came to take it up. Precipitins belong to the class of specific antisubstances or

[5] A short description of these will be found in the last volume of Burghard's System of Operative Surgery, vol. iii., pp. 703-708.

immune bodies. They were discovered by bacteriologists during the investigation of the properties of the blood serum upon which depends immunity against infective disease. It was whilst following in my own laboratory the results that had been achieved in Germany by Uhlenhuth,[1] Wassermann and Schütze,[2] and by Nuttall[3] in Cambridge that I was enabled to convince myself of the objective reality of the phenomena in question and of their ready applicability in practice. Having tried the precipitin method in various ways and with every conceivable control, and having mastered the technique (which requires a good deal of time and perseverance), I brought the matter under the notice of the Irish Government in 1902 and have been entrusted by them with the conduct of such investigations in criminal cases.

During the seven years that have since elapsed I have been many times subjected to cross-examination with reference to the exact nature and reliability of the test. Save on one occasion I have always succeeded in explaining it to the satisfaction of the court. But, incidentally, I have found that even in our own profession there exists a great deal of misconception with regard to this matter. Passages from standard text-books on medical jurisprudence have been again and again quoted against me, and my attention has been called to the absence of any official recognition of the test on the part of the English Home Office. For these reasons I have thought it well to avail myself of the opportunity afforded by this presidential address to state in the clearest and least technical language I can command the nature of the test, the technique of its application, and the precautions that have to be taken in order to guard against error. I am writing, not for experts on immunity, but for those members of my own and the legal professions who, being without special knowledge of the subject, are desirous of knowing what has been, and what can be, accomplished by the aid of these new tests and how they are to be carried out.

As I have said above, precipitins belong to the class of substances called antibodies which arise in the blood and tissue liquids of animals (including man) as the result of the entrance of certain foreign substances into the animal economy. Not every foreign substance is capable of giving rise to an antibody. In order to do so the introduced substance must possess a certain molecular complexity—must, in fact, be similar in its general nature to the substances which the cell is in the habit of taking in as food, and for the admission of which it possesses what Ehrlich calls receptors. Extraneous substances of simple molecular constitution, which are unlike food and for which the cell does not possess any receptors, are incapable of giving rise to the formation of antibodies. Simple metallic substances, such as arsenic, alkaloidal substances like strychnine, and carbohydrates such as sugar and starch, are therefore incapable of giving rise to immunising antibodies, though a certain amount of immunity against poisons like arsenic or morpineh can be produced by gradually acclimatising the system to their presence—a totally different matter.

In general terms it may be stated that the introduction into the system of a foreign substance of albuminous or proteid nature leads to the formation of an antibody which is found in the serum of the animal so treated. A substance capable of so acting is called an *antigen*. When antigen is brought into relation with serum containing antibody, a reaction takes place between the two, roughly comparable to that which takes place when an acid is brought in contact with an alkali. The two may be said to combine and neutralise each other. The effect may be at once perceptible to our unaided senses, or it may require to be demonstrated by special methods. The following are amongst the chief kinds of antibodies: (1) antitoxins, (2) precipitins, (3) agglutinins, (4) opsonins (in part), and (5) lysins.

Poisons of complex constitution and derived either from animals (snake and spider poison), from the higher vegetables (abrin, ricin), or from bacteria (diphtheria, tetanus), are the genetic bodies of antitoxins. When a toxin is brought into contact with its antitoxin no visible change is produced, but the combination is non-virulent, owing to the occupation of the haptophore group of the toxin, on Ehrlich's hypothesis.

Agglutinins and opsonins come under the head of antibacterial substances, and so do bacteriolysins. The antigen is the micro-organism, and the effect of bringing antigen and antibody into contact is the agglutination, or phagocytosis (in the presence of leucocytes), or solution of the genetic organism, as the case may be.

Under the head of lysins come not only the bacteriolysins just referred to, but also cytolysins, the genetic bodies being cells foreign to the animal into the economy of which they are introduced. The most important of these are the hæmolysins, which are evoked by the injection of foreign red-blood cells. The effect of bringing the antibody (hæmolytic serum) into contact with the antigen (blood corpuscles of the kind used for injection) is that the cell stroma is ruptured and the hæmoglobin diffuses through the liquid. This "laking" of the blood, as it is called, is the most easily observed of all phenomena of this class and is extensively used for the detection of antigens and antibodies by the method first suggested by Bordet and Gengou[4], more fully worked out by Wassermann[5] and his colleagues, and now generally known as complement-fixation.

For the present, however, we shall confine ourselves to the antibodies that more immediately concern us—viz., precipitins. The antigen of these is serum-albumin or globulin. Any albuminous tissue fluid, even urine (as was, I believe, first shown by Ruffer), can, when injected into an animal of another species, act as antigen. The effect of the addition of serum containing antibody to liquid containing antigen in solution is the production in the previously clear liquid of a haze or opacity which gradually thickens and condenses into little white flocculi. These gradually sink to the bottom and form a cloudy deposit technically called the *precipitum*.

Like all these substances, the precipitating antigen is *specific* in its action. This means that it will produce the above effect *only with its own antigen*, not with antigen derived from any other species of animal, save that which furnished the albumin employed for the injection. This specificity is the keynote of all these reactions and explains their utility in practice. It is not, however, absolute. An antibody produced by injecting albumin from one species will react with antigen from a closely-allied species, as was pointed out by Nuttall[3] in his admirable researches on blood relationship. For example, precipitins made by injecting human antigen will react with the albumin of the higher apes, sheep antibody will react with goat antigen, rabbit antibody will react with hare antigen, &c. But the reaction is, in comparative experiments with properly diluted material, found less distinct with the allied than with the identical antigen, and in this country, where identification of human blood is chiefly required, this source of error is not of much importance and can readily be eliminated by proper controls, as will be explained later on.

Of greater importance is the so-called "mammalian reaction" yielded by certain highly potent antisera, by virtue of which their reactions extend to antigens derived from animals rather widely removed biologically from those which furnished the albumin used in the injections. Errors from this source can readily be avoided by employing the antigen in highly dilute solutions (1 in 500–1000).

3. TECHNIQUE.

The first and most difficult part of the procedure is to obtain the antibody. For this purpose I have always used rabbits. As antigen I have sometimes used human blood obtained, with due precaution against contamination, from the placenta during and after parturition. This is troublesome to obtain and must be used fresh, as it is seldom uncontaminated and micro-organisms speedily make their appearance in it even when stored in the refrigerator. Where antigen blood or serum is difficult to obtain, or can only be had at long intervals, it would be quite possible to dry it over sulphuric acid in a vacuum or in the incubator soaked into filter-paper. Once dry it can be sterilised at 150° without loss of its antigenic property, and can then be stored indefinitely and when needed brought into solution with normal saline solution, or if preferred with sterile distilled water to which an equal volume of 1·7 per cent. saline solution is added. What I now invariably employ is ascitic or pleural effusion, or hydrocele fluid obtained as aseptically as possible and stored over chloroform. The chloroform can be got rid of by pipetting some of the clear supernatant serum into a sterile Petri dish and leaving it overnight in the incubator, covered only with sterile filter paper. Blood of domestic animals can, of course, be readily obtained from the slaughter-house.

Some of the serum (3, 4, 5, or 10 c.c.) is injected into

a rabbit, either intraperitoneally or into the marginal vein of the ear, with all due precautions, and the injection repeated at intervals of four or five days until 25 c.c. have been introduced, when the animal may be bled from the ear and the serum tested as to its content in antibody. The process of bleeding is much facilitated by wrapping the ear in a piece of lint wrung out of hot water. The veins become dilated and the yield of blood is greatly increased. The blood from the divided vein is taken up into a Wright's pipette or allowed to rise into a small test-tube with an obliquely drawn out capillary end. Should there be evidence of the presence of antibody, such as the production of a distinct opalescent zone at the line of contact with the antigen serum diluted 1 in 100, then the injections are proceeded with till the rabbit has received 70 to 80 c.c. of antigen. Much smaller quantities are often effective. 10 to 14 days after the last injection the animal is chloroformed and bled either by dividing the vessels of the neck or by quickly opening the thorax, cutting the great vessels and rapidly pipetting off the blood with which the thorax is filled into a sterile Petri dish, which is propped up obliquely in the refrigerator till the serum has separated. The serum is then drawn up into sterile pipettes and sealed off and stored in the refrigerator. In practice it is difficult to avoid contamination by hairs, &c., and the serum will seldom keep at room temperature unless filtered through a small Berkefeld candle or treated with 1/10 of its volume of 5 per cent. phenol. I have found, however (in agreement with Graham Smith and Sanger [6]), that even specimens of antiserum that smelt badly on opening the tube, and the deposit from which contained anaerobic spores, gave quite useful precipitating reactions if care were taken not to stir up the sediment. Uhlenhuth [7] found that mould-growths did not interfere with the specific power of the serum. The turbidity due to such growths must be allowed to subside or be got rid of by centrifuging. A plan that seems well worth trying is that recommended by von Eisler,[8] of drying the antiserum on strips of black paper—the so-called *Naturpapier*. If only small quantities of antiserum are needed at a time, the animal yielding it can be kept alive for many months and its serum be maintained at a very fair level of potency by an occasional injection of antigen. As cachexia is, however, apt to supervene, and the *titre* has to be re-determined each time, this course is not to be recommended.

The process is tedious and liable to cause disappointment. Some batches of antigen prove toxic. I have had a specimen of pig-serum, freshly collected and to all appearance normal, which killed rabbits in doses as low as 2 c.c. intravenously injected. In other cases cachexia supervenes, more especially if the injections are massive (10 c.c. and more). It is important to make a practice of weighing rabbits at frequent intervals, as if they waste, their serum is useless. Another frequent source of loss is anaphylaxis,[9] which usually occurs at the second injection, especially if it has been a large one. Highly immunised rabbits, the preparation of which has cost much time and trouble, sometimes die from unknown causes in the night, and their serum is thus lost. In order to avoid disappointmemt, if it is absolutely necessary to have some highly potent precipitating antiserum in readiness by a certain date, it is well to start preparing three rabbits at least eight or ten weeks beforehand.

Before applying it for medico-legal purposes, it is absolutely essential to ascertain the potency of the antiserum. For this purpose small test-tubes are used, about 5 cm. long by 5 mm. in bore. They are conveniently made fresh each time from glass tubing, and are placed in little racks with holes for half a dozen. These racks I have had specially made by a tinplate worker. With an ordinary drawn-out capillary pipette I place in the bottom of each about 0·05 c.c. (3 drops) of the serum to be tested, and superpose on its surface with another pipette about 0·1 c.c. of antigen serum diluted with normal saline solution 10, 50, 100, 500, and 1000 times. By way of control a second set of tubes is charged with the antiserum and treated in the same way with the serum of some other animal similarly diluted. Both antiserum and antigen should be absolutely clear, and the line of demarcation between them sharply marked. Personally, I have not been much troubled by opalescent antisera, but if encountered they should be rejected.

Observation is made from time to time up to an hour, the tubes being left meanwhile at the ordinary temperature of the laboratory. The presence of a distinct line or zone of opalescence at the junction of the fluids indicates a positive result. The appearance is not unlike that produced by the nitric-acid test as usually applied to albuminous urine. With a powerful antiserum and a strong solution (1:100) of homologous antigen the opalescence gradually spreads through most of the supernatant fluid and resolves itself into flocculi which by the following day will be found to have sunk to the bottom of the tube. When the antiserum is weak or the antigen very dilute (1:10,000–20,000) the zone may require careful scrutiny by a trained eye and suitable oblique illumination against a dark background for its detection.

I have found that antisera giving a distinct zone within an hour with antigen diluted 1000-fold are quite strong enough for all practical purposes, though I am aware that stronger ones are considered necessary by the German workers. So completely can the test be controlled in actual practice that even comparatively weak sera, reacting only with a 100-fold dilution of antigen, can be made to yield conclusive results.

Highly potent antiserum when brought in contact with strong solutions of antigen may (and very often does) give rise to pseudo-reactions—i.e., precipitates with non-homologous serum or stain extract. Errors so arising are to be avoided by using the antigen diluted to somewhere about the limit of the titre of the antiserum—not stronger at any rate than 1 per 1000, and by careful controls with as many other sorts of antigen as are available, in similar dilutions.

Nuttall [10] has suggested and worked out a method of measuring the amount of precipitin formed in unit time, and comparing it in tubes containing the same antiserum with different antigens. This method does not seem to have been widely practised, and it appears to me that differences in the density of the precipitum might readily affect its apparent bulk, unless, indeed, it were concentrated by the centrifuge. Personally, I have not tried the method, and prefer to base my opinion upon the rapidity and distinctness with which the reaction comes on in the zone of contact between highly potent antiserum and highly diluted antigen.

4. TESTING THE STAIN.

Having obtained a satisfactory antiserum, the next step is to prepare an absolutely clear solution of the stain to be tested. Before proceeding to do this, however, it is necessary to prove that the stain consists of *blood*. This must be done by the usual methods. I always use the benzidine test [11] first, and, should this prove positive, confirm it by the demonstration of hæmin crystals and the spectroscopic reactions of the pigment, using a small Browning spectroscope or the Abbé micro-spectroscope, if the amount is small. I always put up a preparation in 32 per cent. soda so as to observe the character of the corpuscles.

One must not lose sight of the fact that the precipitin reaction reveals the presence, not merely of blood, but of any albuminous substance, such as mucus, pus, semen, milk, or albuminous urine derived from the animal that has provided the antigen used for preparing the antiserum. The necessity for proving that the stain-producing substance is blood therefore remains.

This having been satisfactorily demonstrated, the next thing to do is to prepare a solution of the stain in normal saline solution, and to render it absolutely clear and bright by filtration and the centrifuge. If the amount of material is large, considerable care must be taken not to use it too strong, lest pseudo-reactions give rise to error. It should be colourless, or nearly so, foam on shaking, and give a slight but distinct reaction with the nitric-acid test for albumin. Should the amount of solution available be very small—less than 0·05 c.c., the reaction must be carried out in small pear-shaped or lengthily oval pieces of capillary tubing, the liquids being introduced by means of finely drawn-out capillary pipettes.

It is absolutely essential to carry out side by side with the actual test, a complete series of controls. For this purpose we need blood-stains of man and the chief domestic animals on various substrata. Sheets of filter-paper are the most convenient of these, but it is well to have the blood dried on woollen, linen, and cotton fabrics, also on leather, wood, and metal. This dried material should be of various dates so that one may select for control a specimen not more recent than that under investigation. In addition to the stains of known origin, one ought also to possess at least one

other antiserum made with an antigen different from the one under investigation. Thus, if human blood be suspected it is well to have in hand some rabbit serum anti to, say, ox-albumin. For obvious reasons the larger one's stock of these antisera the better, and I now endeavour to keep in stock those reacting with the albumin of the horse, ox, sheep, and pig. Lastly, one needs some serum from a normal non-immunised rabbit.

Two of the little stands are now taken, each containing six small test-tubes. Each of the tubes in the first stand now receives 0·05 c.c. anti-human serum. With capillary pipettes about double the amount of one of the following dilute solutions is now added to each respectively:—

Test tube 1 receives extract of known human stain.
" " 2 " " " ox "
" " 3 " " " horse "
" " 4 " " " sheep "
" " 5 " " " pig "
" " 6 " " stain under investigation.

The second stand of tubes is now charged as follows:—

Test-tube 1 receives normal rabbit serum about 0·05 c.c.
" 2 " anti-human " " " "
" 3 " " ox " " " "
" 4 " " horse " " " "
" 5 " " sheep " " " "
" 6 " " pig " " " "

About 0·1 c.c. of the extract of suspected stain is now carefully superposed on each with a capillary pipette as above described.

The tubes are observed in 15 minutes and again at the end of an hour. Should the stain be of human origin only Nos. 1 and 6 of the first stand and No. 2 of the second stand should show a positive reaction. The negative results in the remaining tubes of the first stand prove that the antiserum used is specific—i.e., will only react with its own antigen. The negative results in the second stand show that the stain is composed of specific human antigen reacting only with its own antibody.

Should the stain be of non-human origin it will, of course, react in the tube (if there is one) containing the corresponding antibody in the second series, and the conclusion as to its nature can be confirmed by a proper series of controls.

Let us return now to the two concrete cases mentioned earlier in this paper. In the case of the blood stain on the cap, the amount of extract available for the test did not exceed 0·1 c.c. By the capillary-tube method, however, I was able to superpose enough of it on the surface of five different antisera to assure myself that it reacted powerfully with the anti-horse serum, whilst it proved negative over anti-human, anti-ox, anti-sheep, and anti-pig serum respectively. In another series of tubes I tested the specificity of the anti-horse serum used, by running on to its surface a little highly dilute stain extract from horse, man, ox, sheep, and pig respectively, and obtained a reaction in the first tube only. The demonstration of the specific nature of the reaction was thus completed and the origin of the stain determined beyond all possible doubt.

In the other case above referred to, the extract from the several articles submitted, at once reacted with anti-human serum, but not with sera anti to the albumin of the ox, sheep, pig, or horse. I had no anti-goat serum on which to try it, but the anti-human serum I was using gave no reaction with extract of goat-stain, so that the positive result with anti-human serum was conclusive.

5. SENSITIVENESS OF THE TEST.

Coming now to the delicacy of the method, my opinion, based on experience of many cases, is that if the operator has at his disposal a powerful antiserum and good command of capillary-tube technique, the amount of albumin demonstrable by this test is amazingly small. The chief difficulty in my experience is not the smallness of the amount of antigen, but the difficulty of obtaining a satisfactorily clear solution. Filtration of such minute quantities of stain extract is, of course, out of the question, and we must only have recourse to prolonged centrifugation at high velocities, which is usually successful.

I have never attempted to ascertain the smallest amount of antigen demonstrable by this means, but Uhlenhuth[12] says that it is easy to demonstrate 1-20,000th gramme and that Hauser was actually able to demonstrate as little as 1-200,000th part of a gramme by the use of the capillary-tube method due to Carnwath.[13]

My original intention was to refer in this address to the other sero-diagnostic method of albumin differentiation, that introduced with another object by Bordet and Gengou[14] and now well known under the name of complement-fixation. This reaction depends on the property possessed by mixtures containing antigen and the corresponding antibody, of fixing complement, and thus preventing the hæmolysis of sensitised corpuscles. It can be used for the detection of amboceptors (antibodies) in the presence of the corresponding antigen or for the detection of antigen in the presence of the corresponding amboceptor (antibody). It has been used successfully for the detection of infection by known and cultivable micro-organisms (typhoid, cholera, tubercle) and also when the infecting organism is unknown or uncultivable. Its principal application has hitherto been in the latter class of case, when it often affords the only available method of making the diagnosis. The infection to the recognition of which it has been mainly applied is that of syphilis. Wassermann first succeeded[14] by its means in demonstrating syphilis amboceptors in the humours of tabetics and paralytic dements.

It is to Neisser and Sachs[15] that we owe the introduction of complement-fixation into medico-legal practice. Their work was based upon the results of Moreschi[16] who first showed that complement is fixed by the union of precipitin with its homologous precipitinogen (antigen). Inasmuch as precipitins are generally looked upon as receptors of the second order provided with a precipitating and a haptophore group, and ordinarily act independently of complement, it is not exactly clear at first sight how the fixation takes place. It is certain that amboceptors are produced during immunisation with foreign albumin, and that during the process of precipitation they unite with their corresponding antigen and throw down or fix complement. Those who desire precise information as to what goes on during the interaction of these specifically opposed substances are referred to Professor R. Muir's brilliant series of researches published in the *Journal of Hygiene*, and now collected under the title of "Studies in Immunity. Be the explanation what it may, the fact remains that complement is fixed by the union of almost inconceivably minute traces of albumin with its corresponding antibody. The quantity of the combining substances is far too small for any precipitate to be visible, yet the fact that the union has taken place may be proved by the absorption of the complement necessary for the re-activation of an inactive hæmolytic system.

I have some little experience of the test, and hope as time and opportunity offer to accumulate some more and lay it before the Academy on a future occasion. Meanwhile, I will only say that complement-fixation is a very troublesome and time-consuming procedure when carried out with all the proper controls, and without them it has no scientific value. It is much more difficult than the precipitin reaction, and can hardly be carried out satisfactorily in a laboratory where any other work is going on. Moreover, it is excessively delicate, so much so that, as pointed out by Uhlenhuth, even the trace of protein contained in sweat may fix some of the complement. There are other sources of error. Thus, for example, there are present in various fabrics used for clothing, complement-fixing substances,[17] the presence of which has to be specially tested for, and this complicates the already over-elaborate technique. This drawback may be got over in some cases by showing that the substances in question are heat-stable, which is not the case with blood, and in others by the use of artificial hæmolytic amboceptor, instead of naturally hæmolytic serum as originally recommended. I am inclined to agree with Uhlenhuth when he says (*loc. cit.*) that the delicacy of the precipitin test (which can detect 1-20,000th gramme of foreign albumin) suffices for all practical purposes, and that it must seldom be necessary to invoke the aid of complement-fixation in medico-legal work.

Outside of medico-legal work there have been found several interesting and valuable applications for the precipitin method, which I will, in conclusion, briefly touch upon. There is, for example:—

(*a*) The diagnosis of bacterial infections by adding the serum of the infected animal (antibody) to the culture fluid of the suspected organism, filtered free from the bacteria

bodies, but containing their soluble extract or metabolic products (antigen). If the two correspond a specific precipitate is produced, the formation or absence of which can be utilised for diagnostic purposes, as was first, I believe, shown by Wladimiroff in the case of glanders infection of the horse. The reaction has been found to work well in the case of typhoid, cholera, and streptococci. This procedure has been very fully studied by R. Kraus, to whom we owe most of our knowledge on the subject.[18]

(*b*) The recognition of the species of animal from which almost any given tissue or albuminous fluid has been obtained, not merely blood or serum. Thus, for example, by injecting cow-milk serum into rabbits, Fish[19] was enabled to obtain an antiserum (lacto-serum) which produced a specific precipitate with the serum of cow-milk, but not with that from other animals, and which could therefore be employed for diagnostic purposes. It would seem that even boiled milk can have its origin so determined. Working on these lines, Sion and Laptes[20] claim to have traced the origin of samples of cheese. Similarly, in the case of egg-albumin, Myers and Uhlenhuth[21] found that specifically different antisera are yielded by rabbits injected with the whites of the eggs of different species of birds. In this way it was found possible to determine whether a given sample of egg-white was produced by a common fowl, a duck, a turkey, or a plover.

A further application of this reaction which has proved of the utmost practical value in meat-inspection is that whereby the nature of a given sample of muscular tissue can be determined. Rabbits injected, not necessarily with muscle-juice, but with the blood or serum of, say, the horse, dog, or cat, yield antisera which, when brought in contact with extracts of the muscle-tissue of these animals, give rise to highly specific precipitates. In this way it is possible to ascertain the species of animal from which a given piece of flesh was cut, and to refer the several components of a sausage to their respective origins. The German Public Health Administration has taken advantage of this discovery, and now actually prescribes the use of the precipitin reaction in cases of suspected importation of forbidden kinds of meat, adulteration of sausages with horse or dog flesh, &c.

Along these lines it would be possible to determine the origin of the various kinds of meat extract that are now on the market, provided that they had not been heated to such a point as to destroy their specific antigens. This has actually been accomplished in a few cases, and the claim that the extract was made from beef was substantiated in the case of one brand, whilst in another the only albumin demonstrable was found to be derived from hens' eggs![22] An interesting and valuable field of work is thus thrown open to the food analyst who is possessed of the necessary biological training and the requisite facilities for animal experiment. Nor is the applicability of the method confined to albumins of animal origin. Antisera have been made[23] whereby the protein of the grains of cereals can be differentiated from that of the legumes.

(*c*) Different *kinds* of protein derived from the *same species* of animal can sometimes be thus differentiated. Hamburger[24] was able to obtain antisera differentiating the albumin from the casein of cow's milk. Uhlenhuth,[25] by injecting separately the white and the yolk of hens' eggs into different rabbits, was able to obtain antisera specific for each. Of more direct medical interest are the experiments of Weichardt[26] and Liepmann,[27] who by injecting rabbits with placental syncytium were able (by the method of elective saturation) to obtain a serum capable of precipitating one kind of albumin only—that derived from syncytial cells. From this it would appear to be only a short step to obtain antisera exercising a specific action on cancer cells or the albumin derived from them, supposing (which is not certain) that such cells possess any specific properties not shared by the normal epithelium at their seat of origin. Experiments have been made in this direction, but so far as I am aware without success.[28] In this connexion it is interesting to note that by injecting extracts of crystalline lenses from different animals, Uhlenhuth[29] found that the antisera so obtained did not react with the serum or extracts of other organs of the animal that provided the lenses used for the injections. Antisera made from the lenses of various animals (man, pig, fowl, frog) were found to react equally well with the extract of the lens of any animal. From this it would appear that the lens contains an albumin *sui generis*, specific for the organ, but not for the species, and not sharing the biological properties of the blood-derived albumins of the rest of the body. This is a highly interesting observation when viewed in the light of what we know with regard to the origin of the lens from the embryonic ectodermal epithelium. Römer[30] has made use of it to support his theory that senile cataract is due to cytotoxic influences.

(*d*) Lastly, an interesting controversy has arisen as to whether a precipitin reaction can be obtained from the tissues of Egyptian mummies that have been preserved for thousands of years. The inquiry was led up to by the ascertained fact that the origin of bones that have been buried for various periods can be revealed by the precipitin reaction, provided that an extract containing dissolved albumin can still be obtained from them. As the result of their investigations carried out on Egyptian mummies from 3000 to 5000 years old, von Hansemann and Meyer maintain that their tissues react to anti-human serum with sufficient distinctness to enable their human origin to be so demonstrated. On the other hand, Uhlenhuth completely failed to obtain from 27 Egyptian and Peruvian mummies which he tested, any extract capable of yielding a precipitin reaction. Indeed, he states[31] that he failed even with a mummy only 300 years old. In this negative result he is confirmed by Schmidt of Cairo,[32] who was able to obtain from a mummy of the prehistoric period (at least 6000 years old) an extract containing sufficient albumin to give a biuret reaction, but failing to yield a precipitate with human antiserum. The proteid matter would seem to have undergone some radical change during its long period of preservation.

In these latter observations I feel that I have wandered far from my proper subject. But I felt sure that in an opening address such as this, a somewhat general survey of the possibilities of the precipitin method would not be unwelcome to our Section of State Medicine.*

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* A demonstration was then given of the mode of determining the *titre* of a specimen of anti-human rabbit-serum, and a stain of bovine origin, dried for two years on the sole of a boot, was tested with several antisera and referred to its proper source.

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Dublin.

OBSERVATIONS ON CONJUNCTIVITIS.[1]

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ON looking through the answers to the questions I set of the various forms of conjunctivitis I was struck with the enormous number of varieties that from the text-book standard might be enumerated. I wondered whether we were not adopting a sort of ready reckoner style, and whether the simple facts of conjunctivitis might not be lost sight of in the morass of nomenclature. There would be less to complain of if the names were consistently selected, either from the appearance or from the cause, or from the character of symptoms, but no such method is adopted. Some forms are described by names that are a survival of an older nomenclature, such as blennorrhœal, catarrhal; often names are chosen from the appearance of the discharge, mucopurulent, membranous, or from different characteristics, as nyctalopic, angular, follicular; others again from the exciting cause, pneumococcal, diplobacillary, gonococcal, so that without much difficulty one can place exactly the same condition in two or more categories. Instead, therefore, of accurate differentiation, confusion is rendered worse confounded.

I pray that we may be delivered from what used to be the deadly sin of dermatologists, among whom each man was a law unto himself as regards nomenclature, and few realised what his *confrères* were talking about. Let us not forget that conjunctivitis should mean no more and no less than inflammation of the conjunctiva. If, on the one hand, more should arise it is a sequela; on the other hand, for instance, a hyperplasia of the normal lymphoid tissue of the conjunctiva constituting follicles is not conjunctivitis until the follicles become inflamed.

The conjunctiva is that structure that extends from the margin of the skin of the lids to the limbus corneæ, beyond which it is represented by the corneal epithelium, thus constituting a sac. The epithelium at the lid margins is stratified and this form extends for a short distance. It soon becomes of cylindrical type comprising two layers, the deeper rather flattened, the superficial cylindrical. As it approaches the cornea it becomes again stratified, and this form covers the cornea. Goblet cells also form apparently from the deeper layer which discharge their contents, but do not regenerate and are themselves cast off. The subepithelial structure has been divided into two, both fibrous, the more superficial containing a large amount of adenoid tissue, while in the deeper, thicker, and much more densely fibrous connective-tissue corpuscles a large number of lymphocytes are normally present. True papillæ only form near the limbus corneæ. Arteries, nerves, and lymphatics run chiefly in the deeper fibrous layer.

When this structure becomes inflamed it follows the usual course of inflammation from whatever cause arising, the difference being only of degree. The vessels dilate, the capillaries become crammed with leucocytes and red blood cells; in the veins the leucocytes collect along the vessel walls, and there is a general stasis. Then the leucocytes and the blood plasma transude; the lymphocytes normally present in the tissue enormously increase; the former wander through the tissues and show their characteristics of polymorphonuclear cells and reaching the surface are cast off as pus. Mast cells and plasma cells increase the effusion which produces the swelling known as chemosis. The goblet cells secreting mucus greatly increase as the inflammation proceeds, and these constituents go to form the "discharge." Sometimes the vessels become plugged or the fibrine-forming factors of the blood plasma that has transuded form a membrane on the surface of the conjunctiva involving the epithelial layer, or in more aggravated cases the coagulation takes place in the structure of the lid, and the tissue becomes solid like wood.

Now this is briefly what occurs in varying degrees when the conjunctiva is inflamed. As a rule, the causes are so readily disseminated that the attack is general, but from some causes it may be more or less localised, and in a few it is strictly so.

Now, the incidence of some attacks of conjunctivitis may be fairly regarded in the light of an attack on the vitality of the patient by a foreign army of infection choosing the conjunctiva as a battle-ground, while other attacks represent a mutiny on the part of those whose special function is to preserve order. The first simile refers to the action of the various pathogenic micro-organisms that have been isolated, the second to neuropathic conditions, such as herpes, pemphigus, and perhaps phlyctenules, and if in your mind you carry further the similes you will recognise how closely the fact of victory or defeat or guerrilla warfare corresponds with actual facts of the inflammation. Now, as to these micro-organisms, if you will allow me to change my metaphor to the more mundane one of a police court, some have been caught red-handed and are convicted, and these include streptococci, pneumococci, gonococci, diplobacilli, Koch-Weeks and tubercle, while grave suspicion attaches to staphylococci, and circumstantial evidence is dead against Klebs-Löffler bacilli in membranous conditions, while several others are under supervision.

The chief agent in producing what used to be called mucopurulent conjunctivitis, catarrhal conjunctivitis, and "pink eye" is the Koch-Weeks bacillus. Quickly as it loses its malignancy, difficult as it is to grow, yet it is responsible for very big outbreaks, especially in schools where numbers are associated together, and though it may exercise its morbid influence at any time, yet it selects the springtime most frequently, possibly because then the conjunctiva is rendered more susceptible by pollen and dust. But it must not be forgotten that the pneumococcus is associated with a condition very similar to that of the Koch-Weeks bacillus, not so acute, I think, as an attack that sometimes is produced by Koch-Weeks, but more prolonged and less inclined to yield and with more constitutional disturbance. The anxiety, too, lest the corneal epithelium should become eroded should be much greater with the pneumococcus.

Streptococcal infection is not common; these micro-organisms are found in membranous conjunctivitis, of the responsibility for which the Klebs-Löffler bacillus is suspected, though it is not always found. Plugging of the vessels is said to occur in connexion with this infection, and the only time I have myself ever detected distinct plugging of a conjunctival vessel was in my own case. I had removed from a baby's eye a piece of grass over three inches long that was doubled on itself and lay concealed at the top of the upper conjunctival cul-de-sac. From the history of the case the foreign body had lain there (I am speaking from memory) for five or six weeks, and there was a very free discharge of what appeared to be thick pus from the conjunctival sac. As I was engaged examining the child with its head between my knees in the usual way, a fly settled on my forehead and I raised my left hand to flick it away, when I touched my eye with my finger. I did not pay much attention to it, not thinking from the circumstances of the case that the pus was likely to be particularly malignant, but a few hours afterwards irritation began in the eye, and the next day it was severely inflamed and chemosed, suggesting the possibility of gonorrhœal infection. The following day a black line like a hair could be seen in the swollen conjunctiva of the lower lid, and when I first saw it in the looking-glass I thought it was a hair, as also did another ophthalmic surgeon who tried to wipe it away with a pledget of wool. I had a good deal of constitutional disturbance, swelling of the pre-auricular gland, and continual chemosis and ptosis. Cultivations were taken from the secretion, but not at once, and the result was practically negative, but this was not surprising, as I had been using regularly germicide lotions. It was some three months before my eye could be considered quite well. Now, on reflection I believe my case to have been one of what is called Parinaud's conjunctivitis, cases of which I believe I was the first to describe in this country, though I did not recognise them as such when I wrote the account. No English text-book at that time, so far as I know, had described the condition. No observation I have ever made has given me such satisfaction as this, and I hope

[1] Founded on a lecture delivered at Oxford to the candidates for the diploma in Ophthalmology.

you will allow me to quote the article in THE LANCET of Nov. 7th, 1903, describing what I then called septic conjunctivitis:—

From time to time among private patients of the better class one sees cases of acute inflammation of the conjunctiva with great thickening of that tissue and marked enlargement of the papillæ of both upper and lower lids, resembling somewhat in this respect, only more so, a very acute follicular condition provoked by atropine; the inflammation is usually limited to the palpebral conjunctiva, but there is a tendency for it to pass round the fornices and to involve the ocular conjunctiva. There is free lacrymation and the discharge more serous than purulent. Ptosis, more or less marked, is present. There is generally tenderness or enlargement of the pre-auricular glands and a good deal of constitutional disturbance is present. The condition is generally limited to one eye. Ophthalmic surgeons of experience will, I think, at once recognise the affection I am attempting to describe, but those text-books that notice it are, as a rule, rather vague, and some, I believe, classify the condition under acute trachoma, with which disease, however, it has hardly anything in common. It yields slowly but with certainty to nitrate of silver, sulphate of copper, or, better still, to argyrol (20 per cent.) in the course of from three to eight weeks. It is only when treated by hot fomentations, cocaine, or tying the eye up (too often the case) that the affection becomes exaggerated and extends to the cornea, producing a "soppy" condition of that structure and sometimes small infiltrated ulcers towards its margin.

I have for many years seen isolated cases of this form of conjunctivitis occurring, as far as my memory serves me, in the spring, summer, and autumn rather than in the winter. My reason for drawing attention to it now is the fact that this summer, at any rate in the Oxford district, there has been quite an epidemic of such cases. In two days recently I have seen three severe instances quite unconnected with each other. It would be interesting to know if this has been the experience of surgeons in other parts.

The bacteriology of this affection should be interesting; it cannot be very contagious, for with only ordinary precautions it is limited to one eye. The train of symptoms suggest a septic origin, and I have sometimes imagined I could trace a connexion with mangy dogs or cats, but this is little more than speculation. Perhaps others will be able to define a cause with more authority.

Curiously enough, referring again to my own conjunctival attack, I may mention that after I had attended to the baby I went to a friend's house who kept several dogs, and especially examined one that was mangy. Perhaps, after all, the baby was innocent!

As may be surmised from the foregoing remarks, Parinaud's conjunctivitis has been attributed to streptococci and in some cases they have been found in connexion with it.

The Morax-Axenfeld diplobacillus produces a more chronic form of conjunctivitis and is very definitely associated with the conditions that used to be described as angular conjunctivitis, so-called from the fact that the skin at the internal and external angles of the palpebral fissure was very generally affected. Before the discovery of the diplobacillus I had closely investigated such cases in order to discover, if possible, the cause of the remarkable peculiarity, and I then attributed it to the influence of the lashes of the upper lid, which at the inner and outer angles (especially the outer) came in close contact and rubbed against the skin. In the centre of the lid this is not so much the case, partly from the greater projection forward of the lashes and partly from the protection of the lashes of the lower lid which are more abundant at the centre than at the extremes of the lid, and I had a drawing made of a case which illustrated very markedly the point, where the appearance of "soreness" at the outer angle exactly corresponded with the part rubbed by the very long lashes of the upper lid. I am still inclined to think that the observation was a good one and that the micro-organisms are aided in their morbid work by the chafing of the lashes. The same sort of superficial erosion may occur at the periphery of the cornea. The whole effect produced by the micro-organism is that of "soppy eye."

The gonococcus is one of the most dangerous organisms that attack the eyes, and is responsible for more actual blindness than any other one cause. With modern ideas of cleanliness and treatment the percentage of eyes lost from this cause has become much less, but there are still plenty of opportunities for reducing the rate largely. I am alluding, of course, to the form known as ophthalmia neonatorum, though one has to recognise that all cases of this condition are not due to the gonococcus; and, indeed, in all cases of gonorrheal ophthalmia there is a mixed infection.

Gonorrhœal ophthalmia is generally excited by direct infection, but it is also said to occur by metastasis, but of this I am not personally satisfied. So many sources of error come in that I do not think an absolutely confident diagnosis can be made of metastatic infection. That metastasis does occur, of course, is well known in the case of articular rheumatism and iritis, and I only express my doubt as regards the conjunctivitis due to this organism. One of the chief peculiarities of this bun-shaped diplococcus is that it actually invades the epithelial cells, and may also be found inside polymorphonuclear cells. It is peculiar to man, and the cultures are difficult to grow and quickly perish. The tremendous chemosis and swelling of the lids produced by this inflammation are a source of very grave danger to the cornea, ulceration of which is a very common sequela. The early symptoms might be common to other conditions, but, as a rule, within 24 hours the condition of the parts makes the diagnosis certain. There are, however, exceptions and sometimes one sees a mild form affecting mainly the fornices and, with injection, extending on to the eyeball. This, however, when it occurs is seen in the later stages of the primary urethral attack and represents a condition that is sometimes said to be metastatic. For my own part, I believe this to be an infection at a time when the system has gained a certain stage of immunity, and this leads me on to point out that, in my experience, vaccines of this micro-organism have been of great value in bringing relief, and I should certainly advise you to use this form of treatment should occasion arise.

Just a word about treatment. I believe the keynote is cleanliness and masterly inactivity. Once the tissue has become infected nothing, I believe, tends to cure it but self-immunisation. I have so often seen meddlesome interference bring about the very condition that one would wish to avoid. I taught myself a lesson many years ago in this respect. I devised a lid-elevator which really was a hollow tube with a row of holes at its free edge communicating with a tube down the handle, on which I could place an indiarubber tube and flush out the conjunctival sac. This I did regularly several times a day, gently placing the lid-elevator underneath the upper lid. Notwithstanding the care I took, the whole of the conjunctival epithelium was shed, corresponding to the shape of the lid-elevator. Opposite to this place on the cornea ulceration took place. One must remember that the epithelium of the conjunctiva is swollen and soft and deeply infected and the salvation of the cornea depends largely upon its integrity. I think one should be satisfied with gently flushing the palpebral fissures and eyelashes and wiping therefrom any adherent discharge. One cannot get rid of the infection by flushing out the sac, and any good one may do in that direction is far more than counterbalanced by the damage to the epithelium that is occasioned thereby. Instillation of a drop of argyrol at intervals may be of advantage. Than this and general cleanliness I would suggest nothing more. If the pressure of the swollen lids becomes very great, division of the external canthus might be of advantage.

Leprosy, rare in this country, may infect the conjunctiva, when the typical bacillus will be found. You will remember that it was not found possible to grow this organism on artificial media, but recently[2] Mr. Moses T. Clegg has discovered a method of doing so.

I want to say a word or two about the staphylococcus aureus. It has not been credited with setting up conjunctivitis, but in a paper I read before the Ophthalmological Society of the United Kingdom last December I pointed out the condition of staphylococcus aureus infection of the Meibomian glands as associated with severe conjunctivitis, the attack arising when from one cause or another the resistance is lowered. In the cases I have seen there has been no great amount of discharge, but a very great degree of hyperæmia, with accompanying sense of dryness and soreness of the eye, producing an extreme degree of discomfort. In one case in particular, where the infection of the glands was very marked, and where the opening of the ducts showed as yellow spots along the lid margin and from which thick yellow discharge could be readily expressed, pure cultures of staphylococcus aureus were obtained. After expressing the discharge by pressure along the lid margin and treating with a vaccine made from his own micro-organisms, the attacks at once ceased. When treatment had been discontinued about a year there was a recurrence of the appearance. This lasted for some time until he had an opportunity of again undergoing the treatment, when the symptoms again promptly disappeared. A fuller account of this trouble will be found in the Transactions of the Ophthalmological Society of the United Kingdom for this

[2] THE LANCET, June 11th, 1910, p. 1641.

year and it is a cause of conjunctival infection that should certainly not be overlooked and seems clearly to implicate the micro-organisms discovered growing freely in connexion with it.

Now let me pass on to the diphtheria or Klebs-Löffler bacillus. This is frequently found in conjunctivitis when a membrane forms, but not always, though in cases where it is not found its presence may be suspected. At the same time we must not forget that almost all other forms of micro-organisms to which I have alluded are also found. The membrane is due to coagulation of the fibrin and probably represents a condition in which there is a freer exudation of blood plasma and not necessarily that the Klebs-Löffler bacilli must be present. We get a coagulation, too, sometimes after the use of a strong caustic. I suggest this may be due to precipitation of mucin rather than fibrin, but I only suggest this from the clinical appearance and also because it is a plausible suggestion. It used to be said that in true diphtheria of the lid no false membrane was formed, but the tissue of the lid became like a block of wood, whereas when false membrane formed it was called croupous. In these cases the membrane is easily peeled off, leaving a bleeding surface, and is not a source of special danger to the cornea, as is the case when the whole lid becomes indurated. I myself have never seen a case of induration of the lid without false membrane. Cases of conjunctivitis with false membrane are, of course, fairly common; judging from clinical experience alone, I should not expect to find that they were all true cases of diphtheria. However, this is extremely disputed ground, and beyond drawing your attention to the subject I do not propose to discuss it further. An interesting question here arises as to the differentiation between the Klebs-Löffler and the xerosis bacillus. Now the xerosis bacillus is always, I think, to be found in the conjunctival sac, whereas the Klebs-Löffler bacillus is only associated with membranous exudation and brawny infiltration of the lid; but to state this is, I think, to beg the question to which I wish to draw your attention. Is there any real difference between the Klebs-Löffler and the xerosis bacillus? They morphologically resemble each other and behave in the same way, only differing in a matter of degree, except in so far as their morbid influence is concerned, for whereas Klebs-Löffler bacillus has a most poisonous effect the xerosis bacillus is inert. But it is well known that malignant germs can be attenuated until they become innocent. How then can we say that the xerosis bacillus is not an attenuated form of the Klebs-Löffler? I do not think it is possible to make a judicial statement to this effect, though clinical symptoms support the view, which amounts to almost a certainty, that the two are distinct. The following case that occurred in my experience might lend support in either direction. Many years ago I was bicycling through Berkshire and stopped at a village inn for tea. The landlady drew my attention to a baby in a cradle with a bad eye. I looked at it and saw the typical condition which used to be described as croupous conjunctivitis. Nineteen years afterwards a young man came to the Oxford Eye Hospital having one eye blind with corneal leucoma and giving me the history that when he was a baby I had seen him at the village inn, and I at once recalled the incident. I suggested to my colleague, Mr. Adams, that he should tattoo the leucomatous cornea. The patient was taken into the hospital and he performed the necessary operation. There was a great deal of reaction and dense masses of false membrane formed on his eye for weeks, I am not sure it was not months, afterwards. When they were peeled off they were soon replaced, and this went on, as I have said, for a very long time; of course, it may have been a coincidence, but at any rate it was a very remarkable coincidence, and I suggest the possibility of the Klebs-Löffler bacillus having lain dormant in his conjunctival sac for 19 years ready to associate itself with the wounds in the cornea and conjunctiva, which was drawn over the cornea, resulting from the operation of tattooing.

In this connexion I may speak of trachoma. Its association with a specific micro-organism has not been established, though claims have been put forward. The subject is a very big one and must be dealt with by itself. There is no doubt that it is contagious, though I do not believe it is so to anything like the extent that it has been generally supposed. It is interesting to note among the writers of the first half of the last century how all sorts of conditions have been included under this heading. The interesting passage in Mackenzie's "Diseases of the Eye" (fourth edition, p. 437) describes an attack of trachoma in the slave-ship *Le Rôdeur* in 1819. This epidemic was obviously gonorrhœal ophthalmia, and such is doubtless the case with several of the attacks described among armies, but in these later days trachoma is narrowed down to a very definite entity associated with an appearance that it is hardly necessary for me to describe to you. I will only point out now what I have suggested before, that its contagiousness is not nearly so active as is supposed. Other conditions must, I think, have a very large share in the incidence of the attack. My experience in hospital work places me in a peculiar position for forming a judgment. I have been for over twenty years surgeon to the Oxford Eye Hospital, a country district, and at the same time for over ten years to the Royal Eye Hospital, Southwark. A case of so-called follicular conjunctivitis seen in London I would know would resolve itself, almost as a certainty, into trachoma. The same sort of case seen in the country I would be equally certain would recover completely without further symptoms. As a further illustration of this I may mention that in the workhouse at Abingdon, sleeping in a dormitory with a large number of other children, was a case of severe trachoma accompanied by pannus and free secretion. The case from its history had obviously been going on for a year, and yet not one of the other children was affected. Such a thing could not have gone on in a London workhouse school without general infection taking place. However, I will satisfy myself with throwing down this apple of discord in the presence of Mr. Stephenson, who probably knows more than anybody else in this country about trachoma.

I will pass on to conjunctivitis associated with follicles. Lymphoid follicles might almost be considered as a normal condition of the lid and are seen more often as even rows of translucent elevations near the fornix of the lower lid. They are sometimes enormously increased in number in conditions of lowered health like anæmia and cases of hypermetropia, perhaps arising from congestion due to the straining of the ciliary muscle, for marginal blepharitis often arises from the same cause. They are often associated with the local effect of atropine, eserine, or cocaine, but, when due to the irritation of these drugs, they are generally inflamed and constitute conjunctivitis. But they are frequently seen without any appearance of inflammation whatever and are, as I have suggested before, merely a hyperplasia of the normal tissue. When from any cause conjunctivitis does arise in cases where these are present, it presents espacially severe symptoms, but by the inflammatory process the disappearance of the follicles is brought about in the process of recovery.

Now, a few words on localised conditions. There is the primary syphilitic chancre with its indurated margin which, when once well developed, is easily recognised, but which, in the earlier stages, is a matter of some difficulty, perhaps mainly because it is unsuspected. Tubercle shows itself as polypoid outgrowths of a granulation tissue, as small nodules, and as ulcers which tend to coalesce. The palpebral conjunctiva is usually affected, though not solely. Tubercle bacillus may be found, but often is not. It is well in cases where tubercle is suspected to observe von Pirquet's vaccine reaction. You will remember the other day I showed you a boy whose conjunctiva showed what seemed to be typical of one form of tubercular conjunctivitis. Yet the von Pirquet reaction was negative. This was to me of especial interest for, from the clinical appearance of the case, I had no doubt that it was a case of tubercle, but in the face of the negative reaction I cannot feel so certain. Yet I cannot suggest any cause that seems to me a probable one other than tubercle.

In connexion with tubercle it is well to draw your attention to the form of conjunctivitis that might suggest it as the cause, but is really excited by the hairs of certain caterpillars. The disastrous consequences that occur not only to the conjunctiva but to the deeper structures of the eye must be borne in mind.

Spring catarrh, a very rare condition in this country, is occasionally seen. Its etiology is very doubtful. The appearance, however, is typical. The conjunctiva within the lid margins shows new growth of the appearance of paving stones, or, as one of you suggested to me the other day, the mud at the bottom of a dry pond cracked by the heat of the sun. I think that is a more typical appearance than paving stones.

Another form of this trouble is when the bulbar conjunctiva is affected with a sort of brown, brawny infiltration surrounding the cornea near the limbus. Lately, Mackenzie Davidson has claimed to be able to cure such cases fairly rapidly with the aid of radium. The conjunctivitis associated with phlyctenules, herpes, and pemphigus is, no doubt, neuropathic in origin. The phlyctenular type presents marked injection of the bulbar conjunctiva, without or with very little conjunctival discharge. Sometimes there may be no phlyctenules, and the characteristic I have mentioned will suggest the condition. Herpetic vesicles on the conjunctiva are not very common, but they do occur, and give rise to a great deal of trouble. In connexion with herpetic vesicles on the cornea or conjunctiva or skin, it is interesting to note that you always, I think, find enlargement of the auricular glands, suggesting from that symptom alone that the cause might have been micro-organisms; but this is only an instance of how wrong conclusions may readily be drawn, and are so often drawn, from our insufficient knowledge of this new branch of medical research. It is obvious, I think, in this case, that the necrotic tissue formed at the seat of the vesicle has been an effective nidus for the growth of organisms which have in this way affected the lymphatic system. Phlyctenular conjunctivitis, though not due to tubercle, as has been very clearly shown by Mr. Stephenson, is frequently associated with it. The *causa causans* of pemphigus is more or less wrapped in mystery. Radcliffe Crocker suggests that it is due to the action of toxins on the nerve-centres. Be this as it may, the condition described as essential shrinking of the conjunctiva is doubtless a later stage of it. The condition of xerosis is often produced and xerosis bacillus found in it, but it is not at all probable that the trouble is originated by its presence.

I should mention the attacks of irritative conjunctivitis that occur in those who are liable to be irritated by the pollen of flowers, the intolerable "itching," and the desire to "tear the eyes out," the only real cure being to get away from the cause by going to the sea when the wind is not off the land. I have noticed that those who suffer from hay fever are often, though certainly not always, of the neurotic type, the same sort of people who get erythropsia after cataract extraction, and I have noted, too, that "hay fever" subjects are at other times particularly free from mucous secretion—people who do not soil their handkerchiefs much—and I have wondered whether the incidence of hay fever may not have something to do with insufficiency of the secretion of mucus. I throw this out as a suggestion but not as an established observation. One word in connexion with this subject upon a rare form of individual intolerance of certain flowers, not due probably to their pollen, I think, but to other characteristics. The two flowers that I have associated with patients are primulas and dahlias. It is an interesting type of inflammation which affects also the skin of the face something like erysipelas and the fact is well worth remembering.

I will just mention a conjunctivitis, a condition in which, however, the salient symptoms depend more on the corneal coaffection: it is that due to exposure to a naked arc light. The patient goes to bed apparently unaffected and after a few hours wakes up in intolerable pain from the shedding of the corneal and conjunctival epithelium.

In conclusion, I will say a few words about treatment. The main point in treatment is a "masterly inactivity." The infective condition gets well by a power of self-immunisation, not because you have irrigated the eyes with astringents. I kept statistics of a large number of cases treated with astringents, with boric lotion, and with plain water. The astringents came last, the boric lotion and water were about equal in time of recovery. The one exception to these general remarks is the diplobacillary infection which is promptly destroyed by sulphate of zinc. Sometimes the conditions relapse or may become chronic, immunity not being completely gained, and then stimulation seems to answer, more blood is brought to the part, old cells are cast off, and the micro-organism is more effectually dealt with by the leucocytes. Phlyctenular conjunctivitis only requires fresh air under all conditions and in all weathers; it rapidly gets well, but it seems impossible to secure this in the patient's own home, and talk as you will to the parents and do what you will to the child the cases go on for weeks. They just will not carry out instructions. I remember the case of a child in a good social position who for weeks and weeks suffered from all the usual train of symptoms, intolerance of light, &c., for whom I gave the usual instructions, regular healthy diet and to get out of doors twice a day for long periods. Eventually the family medical attendant took part against me and I, perhaps rather rashly, said, "Let me have the child in the hospital and I will undertake to cure her in three days." The child, however, went home practically well on the fourth day, and I had done nothing more than I had previously suggested.

Other local conditions will more or less suggest the line of treatment that should be adopted, and for particulars of the details of treatment I will refer you to the standard text-books.

Cavendish-square, W.

INFLUENZAL MENINGITIS.[1]

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Introduction.—Influenzal meningitis is probably a rare infection, but its rarity in the past is very likely due to the difficulty in recognition of the organism, and even at the present time it is by no means certain that the organism described in some cases as the influenzal bacillus is identical with that described by Pfeiffer. Until November, 1908, no known case of influenzal meningitis had occurred in the Hospital for Sick Children, Great Ormond-street. Since that date 5 cases of influenzal meningitis have been admitted into the hospital—1 in November, 1908; 1 in December, 1909; and 3 in the earlier months of 1910. Of these cases 4 patients have died and 1 has recovered.

CASE 1.—On March 11th, 1910, a female child aged 1 year and 2 months was admitted to the hospital under my care. She was the second of two healthy children, the mother and father being quite healthy. There had been no miscarriage. The child had been quite well till Feb. 23rd, when the mother noticed that she was feverish and that the head was retracted. She had been under the care of a medical man for 14 days before being brought to the hospital, and at times had seemed better and at other times worse. She had never been unconscious, nor had she had convulsions. She had taken her food well, she had not vomited, and the bowels had acted regularly. On admission the child was quite conscious, well nourished, lay quite still if undisturbed, and apparently saw well. No change was noted in the fundus. The head was somewhat retracted, and the neck muscles were rigid, but there was no arching of the back and the limbs were not spastic. The fontanelle was prominent. The temperature during the first five days varied from 101° to 103° F. The knee-jerks were active, the plantars gave an extensor response, and the abdominal reflexes were not obtained. Kernig's sign was not present. Lumbar puncture yielded a very turbid fluid which flowed out under considerable pressure. It contained a considerable amount of albumin, and on cytological examination the cell deposit was composed almost entirely of polymorphonuclear cells, among which both extra- and intra-cellular organisms were found. On culture a very scanty growth of diplococci resembling meningococci was found. The child was then treated with injections of 10 cubic centimetres of antimeningococcal serum of the Lister Institute, repeated every day for six days, but without effect. On March 12th Dr. J. Graham Forbes reported that the organism present in many respects resembled the bacillus influenzæ. A subculture was planted, and on the 14th he presented the following report:—

The cerebro-spinal fluid is turbid, yellow in colour, and yields, of course, granular clot. There is a heavy deposit of albumin, and dextrose is absent. There is a dense cell deposit, composed chiefly of polymorphonuclear cells. Scattered groups of bacilli are present, some in diplococcal form, intracellular, and Gram-negative. There is no visible growth on serum, but films taken from the surface of the serum show numerous bacilli of variable length, some in diplococcal form, and all Gram-negative. Subcultures on blood agar show an abundant growth of bacillus influenzæ.

The growth and cerebro-spinal fluid were now submitted to Dr. J. A. Arkwright at the Lister Institute, who reported that 5 cubic centimetres of the cerebro-spinal fluid injected intravenously into a rabbit produced no effect. The growth of one

[1] Notes of a lecture delivered at the Hospital for Sick Children, Great Ormond-street, on May 19th, 1910.

blood agar tube was also injected intravenously into a rabbit without effect. A guinea-pig was injected intraperitoneally with the cerebro-spinal fluid and another injected intracerebrally, and a mouse subcutaneously with large doses of the culture without effect. It is therefore evident that the organism was not pathogenic to animals.

Having arrived at the conclusion that the organism was not the meningococcus and was in all probability the bacillus influenzæ, the injections of antimeningococcal serum were stopped, and having in mind the recent observations of Crowe, 10 grains of urotropin were given every four hours. The child took the drug well, but the temperature did not fall to normal till March 25th. The organisms could still be cultivated from the fluid on March 22nd, but on April 8th, when the next lumbar puncture was performed, the fluid was clear, contained a fair number of lymphocytes, a few polymorphonuclear cells, and was sterile.

The temperature was normal on March 28th, and the child seemed much better, but took but little notice of her surroundings. On the other hand, she heard well, said a few words, and knew her mother. On May 18th she could feed herself, but could not sit up in bed alone, and could not stand. She could not see, the pupils reacted to light, but not very actively, and there was no ophthalmoscopic change. With regard to the ultimate fate of the mental condition of the child I think it is impossible at the present time to foretell. That she may yet recover her sight is possible, for I have seen a child who, though blind for four months after an attack of meningococcal meningitis, yet recovered perfect vision. Since the above note was written the child has partially recovered sight and can now sit up and stand alone.

Four other cases of influenzal meningitis have been in the hospital under the care of my colleagues, Dr. A. E. Garrod, Dr. A. F. Voelcker, and Dr. W. S. Colman, to whom my thanks are due for permission to refer to them. The first case was admitted to the hospital on Nov. 25th, 1908, under Dr. Colman's care.

CASE 2.—The patient, a female child 6 months old, was quite well until four weeks before admission, when she had ear discharge. On Oct. 21st there was some retraction of the head and the eyes were turned up. On the 24th the child presented some signs of pneumonia. On Nov. 11th she became drowsy and there was twitching of the right arm. She was admitted to the hospital on the 13th. On examination she was a well-nourished child and was quite conscious but drowsy. All the limbs were stiff, and Kernig's sign was present. A lumbar puncture was performed and three drachms of fluid were removed. Dr. Forbes reported that the fluid was clear, containing a soft flocculent clot and small shreds of lymph. The majority of the cells were polymorphonuclear and a scanty number of diplococci were seen resembling the pneumococcus. On the 14th the child was unconscious. On the 17th twitching of the left side commenced, and on the 19th there was twitching of all the limbs. A further lumbar puncture was done and Dr. Forbes furnished the following report:—

> The cells are polymorphonuclear and short cocci are seen, some of which are in pairs. On culture a very short Gram-negative bacillus, presenting some coccal forms and occurring in pairs, was observed. Some long bacilli were also present. This organism is probably the bacillus influenzæ.

On Nov. 20th the child was injected with a vaccine of 25,000,000 organisms. On the 24th a further injection was given of half this number, but no improvement took place and the child died on the 25th. There was no necropsy.

CASE 3.—The third case of this group of five cases is that of a male child, aged 7 months, who was admitted under the care of Dr. Voelcker on Nov. 29th, 1909. The child had been quite well till Nov. 27th, when he was taken ill with a fit and had retraction of the head whilst lying in his mother's arms. The next day the child vomited and the fontanelle was noticed to be prominent. On the following day he was admitted to the hospital. The neck was rigid, the fontanelle was prominent, and the child was drowsy, but there was no rigidity of the limbs and Kernig's sign was absent. The patient evinced no sign of pain. There was no squint, the pupils reacted well, and there was no neuritis. The knee-jerks were active and equal, and the plantar response on the left was extensor and on the right no response was obtained. Lumbar puncture yielded a turbid fluid containing a thick viscid flake of purulent lymph. Dr. Forbes reported that the fluid contained albumin and a trace of dextrose. The cells composing the lymph were chiefly polymorphonuclear. A small number of Gram-negative organisms were seen. Culture on blood serum yielded a scanty growth of small Gram-negative bacilli resembling Pfeiffer's bacillus influenzæ. On Dec. 4th an injection of a vaccine of 2,500,000 bacilli influenzæ was made, and on the 6th and 7th the child seemed better. The cerebro-spinal fluid on the 7th had the same characters as on the first occasion, and a pure culture of bacillus influenzæ was obtained. The organism was both free and intra-cellular in the cerebro-spinal fluid. On the 8th a further injection of vaccine was given. On the 13th the child was worse; he had conjugate deviation of the eyes to the left, and died on that day.

At the necropsy thick pus was found covering the whole of the cerebral hemispheres and surrounding the spinal cord. All the other organs were normal.

CASE 4.—The fourth case was that of a female infant, aged 7 months, who was admitted under the care of Dr. Garrod on Jan. 27th, 1910. She was quite well till Jan. 14th, when she vomited continuously for two days. After one week she became dull and the temperature varied from 101·5° to 99·5° F. On examination she was found to be a well-nourished child. The anterior fontanelle was open, the head was retracted, and there was a marked Kernig sign. The knee-jerks were present. Lumbar puncture showed a turbid fluid, which on examination yielded a coarse clot with numerous slender Gram-negative bacilli and a very scanty growth of bacilli resembling bacillus influenzæ. On the 29th an injection of a vaccine of 5,000,000 influenzal bacilli was given. On the 31st the child seemed better, but on Feb. 1st she developed convulsions, the head became more retracted, and she died on the 4th.

Dr. Forbes's reports on the cerebro-spinal fluid were as follows:—

> Jan. 27th: The cerebro-spinal fluid is turbid and forms a clot; there is a heavy cloud of albumin, dextrose is absent, and there is a marked excess of polymorphonuclear cells, numerous small, slender Gram-negative bacilli resembling bacillus influenzæ. The culture was sterile.
> Feb. 1st: Numerous bacilli resembling bacillus influenzæ. A scanty growth of bacillus influenzæ.

No necropsy was obtained in this case.

CASE 5.—The last case of this group was that of a child aged 1 year and 4 months, who was admitted on Feb. 13th, 1910, under the care of Dr. Voelcker. Sixteen days previously to admission the child developed a cold, and six days later had a fit, during which the face, the arms, and the legs twitched; a similar fit affecting the left side occurred on the next day. Since then the fits had become more frequent. On admission the child was pale but well nourished; the temperature was 101·4° F. There was slight retraction of the head, and the neck was stiff. The patient was blind, and the eyes were constantly deviated to the left. The optic discs were pale. Both arms were rigid, and the legs were fully extended. The knee-jerks were present. On the 14th severe convulsions came on and the child died.

A post-mortem examination was performed on the following day, and on examination of the brain the whole of the anterior part of the cerebrum was found to be covered by a layer of pus, which also extended over the base. The ventricles also contained pus. The posterior surface of the cord was also covered with pus. On the anterior aspect of the body of the third dorsal vertebra was a small abscess cavity containing thick yellow pus. The pus and fluid from the cerebral ventricles and meninges were examined. The films showed numerous bacilli of varying size and length which were Gram-negative and resembled the bacillus influenzæ. On culture a pure growth of the bacillus influenzæ was obtained.

Symptomatology.—From a consideration of the cases just recorded it is possible to obtain a clinical picture of the disease. The symptoms are exactly similar to those which occur in the meningococcal forms of meningitis. In fact, it is impossible on clinical grounds alone to distinguish an influenzal meningitis from a meningococcal meningitis. Neither the acuteness of the onset nor the character of the symptoms nor the duration of the disease will in any way serve to differentiate these conditions. It is only possible to arrive at the diagnosis of influenzal meningitis by a careful bacteriological examination of the cerebro-spinal fluid obtained by lumbar puncture, and the cases just recorded would easily have escaped recognition except for the careful

examination of the cerebro-spinal fluid conducted by Dr. Forbes.

Historical.—Cases of influenzal meningitis have been reported from the year 1892, some three years after Pfeiffer had discovered the organism, but owing to the difficulty of identifying the organism and the presence of other organisms it is doubtful if any case can be accepted as influenzal meningitis before those recorded by Fraenkel in 1898—who found the organism in two cases of meningitis in infants. Slawyk in 1899 is stated to have been the first to establish the diagnosis of influenzal meningitis during life by means of lumbar puncture. Since that time several cases have been recorded.

An extremely good digest on this subject is given by Cohoe, who has collected 26 cases which he accepts as undoubted influenzal meningitis. He points out that since a precise diagnosis is only possible by a bacteriological examination of the cerebro-spinal fluid, the reports of many of the earlier cases are worthless in a statistical study of the disease. Of the 26 cases 14 (56 per cent.) occurred in children under one year of age, all of whom died, and the mortality for the whole series was 85 per cent. Langer records the case of a boy, aged 9 years, who recovered, which is the youngest age at which recovery has taken place. Douglas in 1907 recorded a case of influenzal meningitis in an infant, aged 10 months, who died on the eighth day, and Dudgeon and Adams in the same year recorded another fatal case in an infant also 10 months old. Mya, Bertini, Jundell, and Fraenkel have all reported cases in infants. These 14 cases, together with the 5 here recorded, give a total of 19 cases in children under 2 years of age—18 of these patients died and 1 recovered, giving a mortality of 94 per cent.

Diagnosis.—The essential difficulty in the diagnosis of these cases is the recognition of the organism. Unless routine cultures are made on some blood medium the organism may be easily overlooked and the fluid reported as sterile. In the present series of cases Dr. Forbes, in his reports states that both morphologically and culturally the organism has all the characteristics of the bacillus influenzæ, and Dr. Arkwright in one case has shown that the organism is not pathogenic to animals. Cohen has described an organism which he says has been confused by former observers with the Pfeiffer bacillus, which it resembles most closely morphologically and in staining reaction, but which is pathogenic to guinea-pigs and rabbits and against which it was possible to vaccinate an animal and obtain an antitoxic serum. The organism present in the first case reported cannot have been of this nature, for it was shown not to be pathogenic to animals.

The symptoms produced by influenzal meningitis in infants do not differ from those which are present in meningococcal meningitis, and the diagnosis of influenzal meningitis from other forms depends upon the bacteriological examination of the cerebro-spinal fluid. The cerebro-spinal fluid obtained by lumbar puncture may in some cases of influenzal meningitis be somewhat viscid, and such an observation may suggest the possibility of an influenzal infection. It can, however, hardly be regarded as a point on which alone the diagnosis could be made.

Treatment.—Lumbar puncture has been performed in most of the cases recorded, but it can hardly be regarded as a therapeutic measure, although recovery has followed this procedure in some cases. In the case under discussion the child was for six days treated with the anti-meningococcal serum of the Lister Institute, as the case was at first regarded as one of meningococcal infection. When the nature of the infection was recognised the serum was stopped, and 10 grains of urotropin were given every four hours for three weeks. The *rationale* of the administration of urotropin is based upon the observation of Crowe, "that after doses of urotropin within therapeutic limits a sufficient amount of the drug appears in the cerebro-spinal fluid to exercise a decided inhibitory effect on the growth of organisms, and will markedly defer, and in some cases prevent, the onset of a fatal meningitis." The favourable result obtained in this case cannot with certainty be attributed to the treatment with urotropin, but the fact that all other cases of this nature in children under two years of age have proved fatal, whereas this child recovered, makes the treatment worthy of further trial.

Conclusion.—Although the cases above recorded differ somewhat in the degree to which the bacteriological examination has been carried, yet they may all be accepted as cases of influenzal meningitis. The diagnosis of an influenzal meningitis must depend solely upon the bacteriological examination, for it is impossible clinically to distinguish influenzal meningitis from other forms of meningitis. In the only case of recovery which has taken place in an infant urotropin was given in large doses, and it would seem that this treatment is worthy of further trial.

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Harley-street, W.

A COMPARISON MADE BETWEEN THE SIMPLE GASTRO-CIRCULATORY SEIZURE AND THE ANGINA PECTORIS ATTACK.

BY WALTER VERDON, F.R.C.S. ENG.

"THE symptom-complex called angina pectoris belongs to the class of reflex protective phenomena." So writes Dr. James Mackenzie in his work upon Diseases of the Heart, after putting forward a reasoned argument in favour of the view that angina pectoris is a cardiac reflex.

In the course of this article evidence opposed to the latter inference is laid before the reader, and proofs are adduced tending to show that the anginal seizure is a gastric reflex, that it is evolved from the painless type of simple gastro-circulatory seizure, and that the entity pain is not an essential content of the syndrome but an excrescent appendage. Much attention is bestowed by writers on angina pectoris in the investigation of the pain symptom, while other symptoms holding a constant place among the contents of the syndrome are allowed to pass unnoticed. By this attitude on the part of observers I am reminded of the tale of the student who, when asked by his examiners to describe an operation, spoke only of the extent of the hæmorrhage. In the anginal attack there is much else worthy of consideration besides pain. Indeed, if pain be eliminated altogether from the field of contemplation the symptoms remaining are observed to constitute a complete and harmonious category.

When the anginal attack is considered in regard to its place among paroxysmal seizures, it is found to resemble a class associated with functional disorders of the stomach, of which the simple gastro-circulatory seizure commonly known as a vomiting attack is a strong example. The dual syndrome of the simple gastro-circulatory attack represents a series of operations organised for the purpose of protecting the stomach from the effects resulting from the intrusion of a noxious body. The gastric group of operations have for their object neutralisation of the offensive properties of the irritant and its ejection from the gastric cavity; the circulatory group the defence of tissues of the gastric wall and the repair of its lesions.

The gastric operations are divisible into three groups—namely: (*a*) Operations for furnishing a direct and open path between the cavity of the stomach and the exterior of the body for the rapid discharge of the gastric contents. These operations are accompanied by an abundant flow of saliva to dilute and neutralise the contents of the stomach and to lubricate the passages. (*b*) Operations for the provision of a firm and fixed diaphragmatic cushion against which the stomach may be compressed. (*c*) Operations determining the compression of the stomach against the inflated diaphragmatic cushion, and the ejection of the gastric contents.

The circulatory syndrome represents operations engaged in with the object of counteracting the effects produced on the tissues of the gastric wall by the presence of an irritant body in the stomach. These operations consist of two groups:—1. The provision of an abundant supply of blood to the splanchnic region. 2. The establishment of compensatory constriction of the stream bed in the somatic and thoracic regions.

When the gastric crisis approaches, as that arising from

the presence in the stomach of an irritant, the stream bed in the splanchnic region undergoes augmentation and furnishes accommodation for a large additional influx of arterial blood. Precisely the same thing happens in the case of a limb or other organ under irritation or lesion. The purpose of the operation is to supply the affected region with nutrient fluid and leucocytes in abundance for the means of repair and for the requirements of defence. The purpose of constriction of the stream bed of the somatic and thoracic regions is to hasten the current of the arterial blood stream in the direction of the scene of irritation and to maintain the standard elevation of general systemic blood pressure which would otherwise fall to a level so low as to endanger the integrity of all circulatory processes.

Schema A.

In this table the gastric and circulatory operations which take place to counteract the presence of an irritant in the stomach are enumerated in the first column, while in the second appear the symptoms representing these operations.

The Gastric Syndrome.

(a) *The establishment of a free, open, and direct œsophageal path for the outward passage of the gastric contents and the abundant secretion of saliva for the purposes of dilution and lubrication.*

Operations.	*Symptoms.*
Dilatation of vessels distributed to lacrymal, nasal, buccal, pharyngeal and submaxillary glands exciting a flow of secretion for the purpose of lubricating the passages.	Free flow of saliva and watery fluids into the mouth and pharynx.
Coördinated action of mylohyoid, hyoglossus, and other pharyngeal and laryngeal muscles for the purpose of opening and straightening the passage, and for conveying saliva into the œsophagus and stomach.	Swallowing movements.
Contraction of fibres radiating from the cardiac end of the œsophagus, thus opening the lower end of this tube, associated with inspiratory efforts distending it with air. Hypertension of gastro-mural muscle.	Retching.

(b) *The provision of a firm and fixed diaphragmatic cushion.*

Operations.	*Symptoms.*
Deep inspirations.	Attempts at deep inspiration.
Closure of the glottis.	Laryngeal spasm.
Fixation of diaphragm.	Inability to take deep breaths.
Fixation of thoracic muscles.	Sensations of tightness and constriction of the chest.

(c) *Compression of the stomach against the fixed diaphragmatic cushion and the ejection of the gastric contents.*

Contraction of the gastro-mural muscle.	Sense of gastric tension. Eructation of flatus.
Spasmodic and violent contractions of abdominal muscles.	Vomiting.

The Circulatory Syndrome.

(a) Vaso-dilatation in the splanchnic region.	Fall of blood pressure, faintness, pallor, coldness of the skin, small pulse, shrunken veins, feeble beat force, slow pulse-rate, irregular rhythm with intermissions or extra systoles, abundant flow of pale urine.
(b) Compensatory vaso-constriction in the somatic and thoracic regions.	Rapid pulse rate, constricted arteries, sweating.

The circulatory syndrome occurring in the simple gastro-circulatory attack corresponds with the period of nausea and faintness which precedes the act of expulsion of the gastric contents. When the medullary centres of the gastric mechanism are in a robust state the duration of this period is exceedingly short and may pass unnoticed. When these centres are sluggish, as in many forms of dyspepsia, it is prolonged for many minutes or even for one or two hours. It sets in with a falling blood pressure. The shifting of the bulk of the blood stream from the somatic to the splanchnic region leaves the surface arteries and veins alike empty. The pulse is soft, irregular, and intermitting. The skin is cold and pallid, withdrawal of blood from the medullary centres and brain leads to perverted sensations, abnormal cardiac action, disordered breathing, a sense of giddiness and faintness, and even total insensibility.

When compensatory vaso-constriction is feeble these symptoms are exaggerated. When spasmodic and local they may be found associated with hard tight arteries and a thread-like pulse or other evidences of vaso-constriction. The series of cases now cited represent the gastro-circulatory attack in several of its phases.

CASE 1. *Dr. X.'s experiences.*—"It was the custom in a school at which I received my early education for the boys to run at a jog trot pace several times round an enclosed space just after a full meal of milk and bread and butter. During the final lap or before this stage in the course had been reached I often found my breath to be giving out and when I could go no further I used to throw myself down and remain full length upon the turf until my breath returned. On these occasions I experienced sensations of faintness, breath hunger, giddiness, and throbbings at the chest, and sometimes hiccough and retching. On account of many of my school fellows suffering in like manner as myself, representations were made to the house master and orders were given for the meal to be served after the run instead of before it. Under the new rule attacks of this kind seldom occurred."

CASE 2. *Newspaper reports.*—Death of a girl, aged 17, at a skating rink, May 4th, 1910. Medical evidence showed that death was due to heart failure caused by exercise following a rather heavy meal.

CASE 3. *The experiences of a chronic dyspeptic.*—"On March 10th, 1910, when leaving Victoria Station on my way to the Strand no sign of gastric or circulatory disturbance was noted. My way lay along Victoria-street, and when the Army and Navy Stores were approached feelings of gastric distension and a desire to eructate flatus declared themselves. These sensations were ignored and the walk was continued until the porch of the Westminster Palace Hotel came in sight. I then experienced a distressful sensation in the chest, painless in character, but like that of 'lost breath' or 'air hunger' felt during an exhausting race; my muscles refused to carry me forward. The pulse was small and feeble, with a beat rate of 96 per minute. It was interrupted by frequent intermissions. The veins on the dorsal aspect of my hands, usually of large calibre, were shrunken to threads. While still halting I retched several times and succeeded in dislodging a considerable volume of flatus from the stomach. The sensation of distension relieved, the pulse again began to run an even course without intermissions. No further signs of circulatory disturbance manifested themselves before my destination was reached."

CASE 4.—Recently a chronic dyspeptic gave me the following account of his experience:—"After a meal of sandwiches and ale I contested an impromptu race. The course lay on a steep incline crowned by a long flight of stairs. Gaining the lead in the first 200 yards, I retained it, and, mounting the stairs without halting, I reached the summit alone. But no sooner had I come to a standstill than everything seemed to be swimming round me. My sight became dim, and, unable any longer to keep my feet, I sank to the ground in a semi-conscious state gasping for breath. Here I lay for several minutes feeling much oppressed at the chest, but upon bringing up a large quantity of flatus I soon began to recover, and felt quite well again in 10 or 15 minutes."

CASE 5.—A type of attack presenting a gastro-circulatory syndrome somewhat similar in character to those already cited sometimes occurs during a period of profound rest. Mrs. M., who had sought my advice on account of the occurrence of certain obscure and alarming attacks from which she had suffered occasionally, stated that on the evening before she had gone to bed at 11 o'clock feeling quite well. Between 12 and 1 o'clock she was awakened from sleep by a feeling of oppression about the chest as if there were a weight upon it intolerable to bear. "I sat up in bed," she said, "and could not take a deep breath as my chest was tightly bound as if gripped in a vice. What little inspiration I was able to make was accompanied by a crowing sound in the throat. My attendant slept in the next room and I tapped on the wall with the object of obtaining her assistance. I thought I was dying. When she came to me breath was entering my chest more freely but I still felt very ill. I was icy cold, my mouth was full of frothy slime, and my pillow was wet with saliva. I gulped up some wind from the stomach and then lay down feeling relieved. I had uncomfortable feelings about the stomach accompanied by rumbling sounds, but I was now able to breathe freely and I had no longer the terrors before me of approaching death. The attack lasted about two hours and then subsided. Afterwards I went to sleep and slept soundly until morning."

The attendant, who is an intelligent trained nurse, gave me the following account of the attack. "When I entered Mrs. M.'s room I thought she was dying; her face was dusky white, her features were pinched and bathed in perspiration, her hands were cold. I could not feel any pulse at first, and when I found it it was small and feeble, sometimes it stopped beating altogether, and then went on again. I did not notice anything unusual about the patient's breathing. I gave her some brandy; after drinking it she brought up wind several times and her appearance improved. When I again felt her pulse it was beating rapidly with occasional intermissions; later the pulsations at the wrist became quite normal. She complained several times of the rumbling of her stomach, and the sound of it was sufficiently loud to be heard across the room; no vomiting occurred, nor did she complain to me of feeling sick or of any pain."

During the course of the previous six months Mrs. M. had suffered from many attacks of a like character, sometimes coming on in the daytime but generally at night. As far as I could ascertain, her diet was of the simplest description, nor upon the day or evening preceding this attack did she eat or drink anything out of the common course. The patient presented no signs of organic disease. The attacks ceased altogether after milk, which was often taken at bedtime, had been eliminated from her dietary.

CASE 6.—Mr. A., who had been known to me for some years as a gross eater, went to bed one night after a late dinner apparently in the enjoyment of good health. At 2 o'clock on the following morning I was called to see him. His face was pallid and bathed in perspiration. His hands were pale, cold, sweating, and shrunken, and the veins at their dorsal aspect were represented by tiny blue threads. His pulse was small, feeble, rapid, and interrupted at every few beats by intermissions. He occasionally yawned, hiccoughed, swallowed saliva, and retched, and saliva was noticed to trickle from the corners of his mouth and had already wet the covering of his pillow and the front of his night shirt. He was squinting and the muscles of his face twitched. He was not conscious of my presence. His pulse upon a second examination was almost imperceptible, his breathing became shallow

and irregular, and a snoring whistling sound was heard with each laboured inspiration. He had sunk down in bed, his head was flexed on his neck, and his chin rested on his chest.

The pillow and bolster were removed and his head was drawn over the side of the bed and depressed with the double object of encouraging a flow of blood to the medullary centres and a better supply of air to the lungs. At the same time my fingers were forced into his throat to discover if any lodgement of food had taken place in the neighbourhood of the aperture of the glottis. While my fingers were still in his throat he gulped up a large quantity of gas. Convulsive vomiting efforts followed, resulting in the expulsion of half a gallon of dark fluid mixed with undigested food. Ten minutes later the patient was sitting up in bed, and in answer to an inquiry said he felt quite well.

When attacks such as those endured by Mrs. M. and Mr. A. result in the expulsion of the contents of the stomach by vomiting, the purpose underlying the symptoms becomes manifest.

Having now examined and tabulated the processes and symptoms occurring in the painless type of the simple gastro-circulatory attack, we are in a position to approach the consideration of the painful type—namely, angina pectoris—to hold up for comparison all that appertains to these two types of seizure.

When the anginal seizure is stripped of its pain symptoms, the symptoms remaining may be divided into two categories, a gastric and a circulatory, and each of these differentiated groups is observed to stand alone as a complete organic entity, while together they form a dual syndrome. Each section of the dual syndrome represents a purpose, and processes in operation for carrying the purpose into effective consummation. So every symptom in the contents of the respective syndromes is a sign or outward manifestation of a process of the gastric or circulatory mechanism working towards a definite and determinate end.

If the syndrome of the gastric and circulatory symptoms of the anginal seizure be examined closely they are observed to afford evidence of the existence of processes in operation, animated by purposes precisely similar to those manifested in the dual syndrome of the simple gastro-circulatory attack. There is this difference, however, between the two types of seizure. In the robust forms of the simple gastro-circulatory attack the processes in operation as represented in the gastric section of the dual syndrome are perfectly coördinated and sufficiently effective to accomplish their end, and the attack terminates in expulsion of the contents of the stomach; whereas in the case of the anginal seizure the processes in all their operations are inefficiently organised and abortive, and the purpose of the seizure usually remains unfulfilled.

Every entity in the contents of the gastric section of the dual syndrome of the anginal seizure is then to be regarded as a feeble or exaggerated reflexion of a symptom having a place in the corresponding syndrome of the robust forms of the simple gastro-circulatory attack. It therefore follows that while the purposes and the operations manifested in the parallel syndromes are alike in their nature and essence, the presentations of these operations in the respective seizures are dissimilar.

A significant illustration of this unity of purpose and operation and inequality in presentation, furnished by the two types of seizure, is observable in a well-defined group of symptoms—namely, that which represents the operations of the gastric mechanism having for its object the formation and fixation of a firm diaphragmatic cushion against which the stomach may undergo compression during the final act of vomiting. This end is attained to perfection in the robust form of simple gastro-circulatory attack, while in the anginal seizure the accomplishment of the same purpose is attempted by imperfectly coördinated efforts.

The processes engaged in the operation are as follows: (*a*) Inflation of the chest with inspired air; (*b*) closure of the aperture of the glottis; and (*c*) contraction and fixation of the diaphragmatic, intercostal, thoracic, and cervical muscles. For the purpose of comparison the operations occurring in the simple gastro-circulatory attack and the symptoms presented in the anginal seizure are placed side by side in parallel columns.

A group of operations occurring during the simple gastro-circulatory attack.	*A corresponding group of symptoms presented during the anginal seizure.*
(*a*) Inflation of the chest with inspired air.	"*The patient has to stand still and take a great deep inspiration.*" (Mackenzie: Diseases of the Heart, p. 46.)
(*b*) Closure of the aperture of the glottis.	"*There may be laryngeal spasms.*" (R. Quain: Dictionary of Medicine, p. 53, 1882.)
(*c*) Contraction and fixation of the diaphragmatic, intercostal, thoracic, and cervical muscles.	"*The breathing is disturbed, oppressed, and restrained.*" (Douglas Powell: Allbutt's System, vol. vi., p. 48.) "*The breathing is sometimes distressing although the patient can take a deep breath when asked to do so.*" (Bristowe's Medicine, p. 53.) "*A sense of constriction as though the heart was gripped or the thorax were severely pressed.*" (Douglas Powell: Allbutt's System, vol. vi., p. 47.) "*Feeling of great tightness over ribs.*" (Ross: *Brain*, vol. x., p. 355.) "*Pain is generally attended with a sense of constriction.*" (Bristowe's Medicine, p. 519.) "*Pain associated with a sense of constriction 'as if a mailed hand grasped the chest.'*" (Balfour: Twentieth Century of Medicine, p. 445.) "*Some would limit the term Angina Pectoris to that class of cases where in addition to the pain there is a sense of constriction in the chest, amounting to the sensation at times as if the chest were gripped in a vice. I am convinced that these sensations arise from spasms of the intercostal muscles.*" (Mackenzie: Diseases of the Heart, p. 38.)

Another series of symptoms may be observed in the anginal seizure which have a prototype in the simple gastro-circulatory, and in both represent processes in operation for diluting and neutralising the contents of the stomach and for opening, straightening, and lubricating the œsophagus. These processes consist in the secretion of an abundant flow of saliva, swallowing movements, and retching.

Dr. Mackenzie frequently mentions the abundance of the flow of saliva and describes the process of retching. His evidence is the more valuable because it is adduced in favour of a theory not in accord with my argument. It occurs in a statement to show the eructation of flatus which is a common symptom in angina pectoris is the result of "air swallowing." He writes: "Another symptom is extremely common in these cases" of angina pectoris—namely, "the belching of air. ..... Before expelling the air patients unconsciously close the glottis, fix the muscles of the abdominal wall, then expand the chest." "By this process they suck air into the stomach, after sucking in a quantity they expel it with considerable force."[1]

Compare this description of symptoms of an anginal seizure from Mackenzie with that of the simple gastro-circulatory or vomiting attack by Starling. "The act of vomiting is generally preceded by ..... copious salivation and retching. Retching is a violent inspiration while the glottis is kept firmly closed, so that air is drawn into the œsophagus and distends it. This stage is followed by contraction of the fibres radiating from the cardiac end of the œsophagus which opens and allows gas to escape."[2]

In the simple gastro-circulatory attack there is a third group of processes also represented in the anginal seizure—namely, those connected with the expulsion of food from the stomach. They consist of closure of the pyloric orifice, contractions of gastro-mural muscle, and compression of the stomach between the abdominal walls and the inflated cushion of the diaphragm. These processes are represented in the anginal attack by a sense of gastric tension, by forcible expulsion of flatus, and by vomiting.

Vomiting, as might be expected, is a somewhat rare incident in the anginal seizure where the processes of the gastric mechanism are imperfectly coördinated, but it is occasionally described as occurring. It is spoken of by Douglas Powell. "The patient vomits and becomes easier."[3] On the other hand, eructation of flatus is a common feature in every attack. Dr. Mackenzie says: "The case may end by expulsion of air from the chest."[4] "Eructation gives relief."[5] And, again, Mackenzie: "Another symptom is very common in these cases, the belching of air." "The

[1] Mackenzie: Diseases of the Heart, p. 55.
[2] Starling's Physiology, p. 369.
[3] Allbutt's System, vol. iv., p. 49.
[4] Disease of the Heart, p. 47.
[5] Dr. Powell, Allbutt's System, vol. vi., p. 49.

chief feature is the noisy expulsion of air from the stomach."[6]

So far I have only spoken of the gastric syndrome, but the anginal attack, like the simple gastro-circulatory, has a dual syndrome—gastric and circulatory.

In the circulatory syndrome, as in the gastric, a purpose is discernible and the symptoms manifesting it present themselves in boldest outline when the seizure is prolonged. They appear in the period of faintness and pallor, and are contemporary with an influx of arterial blood to the splanchnic region and a withdrawal of the red stream from the somatic and thoracic areas. The same thing occurs in other regions of the body in the presence of an irritant. Local vaso-dilatation is always associated with general compensatory vaso-constriction, and the purpose underlying this disposition of the blood stream is the abundant supply of leucocytes and plasma for the protection and repair of the injured organs.

In the circulatory syndrome of the anginal attack the gastric crisis is a predominant factor, and the splanchnic vessels are the scene of great arterial activity, the outlying regions being drained dry of the stream. Every symptom in the syndrome bears witness to the determination of the greater bulk of the stream to the splanchnic field of distribution of the stream bed, and no sign is found existing in the course of the syndrome which opposes itself to an interpretation of the symptoms in accordance with this hypothesis.

The points of resemblance between the circulatory syndrome of the anginal attack and the corresponding syndrome of the simple gastro-circulatory are many and significant. In both there is a falling blood pressure, venous and arterial, although instances may occur in which blood pressure is sustained at a high elevation on account of organic constriction and obliteration of large circulatory tracts in the splanchnic region as in some forms of nephritic and hepatic disease. Moreover, a fall in blood pressure may be arrested and the movement in the mercury of the manometer reversed through the operation of vigorous compensatory changes in the stream bed, or by an augmentation in the driving force of the heart or an increase in its beat-rate.

In the anginal seizure, as in that of the simple gastro-circulatory, pallor, coldness, sweating, and other signs of depletion and attenuation of the somatic stream are in evidence. In both, moreover, symptoms are present pointing to a recession of the stream from medullary and cerebral centres, and even the heart itself shows signs of blood hunger and a variety of resultant disturbances. The incidence of compensatory vaso-constriction at a time when the heart and vessels of the upper part of the body are depleted of the red stream would tend towards the encouragement of spasmodic, crampy, and irregular contractions of cardiac and arterial muscle—a condition which in certain states of nerve centres and involuntary muscular fibre becomes a factor in the pain symptom. The spasmodic and patchy nature of the vaso-constriction impulse may be gathered from the following extracts.

Heberden reports a case of asphyxia of the left forearm and hand in which the extremity would suddenly become cold during the attack. Trousseau also reports a case where extreme pallor was followed by a pronounced violet and bluish colouration of the arm and hand, the natural colour being restored as soon as the pain ceased. Balfour records the case of a lady whose attacks were always preceded by pallor of the face and fingers, and Bristowe speaks of the affected limb becoming pale and cold. Douglas Powell relates a case where during the attack the pulse was very small, scarcely perceptible, but very hard and thready. In another case he speaks of the pulse being small and thready, and of a third he says: "An attack of pain came on attended with quickened action of the heart and diminution in size and increase in tightness of the pulse; the diminution in size proceeding almost to extinction, a mere tightened thread being felt under the finger." On the other hand, Mackenzie states that he has "never found a single case where the arteries were constricted in the manner sometimes described."

Angina pectoris, like the simple gastro-circulatory seizure, presents two prominent clinical varieties—namely, an attack coming on during exercise and ending upon the cessation of exercise; and a form of attack which generally begins in a period of rest and runs an independent course. Illustrations of these two clinical varieties are now given in the patient's (Dr. X's) own words.

CASE 7.—"On November 19th, 1909, I was called to visit a patient residing at a distance of a mile from my own door, and having at hand no means of conveyance for hastening the journey I set out on foot. My path lay along a road of easy and falling gradients and for the first hundred yards all went well with me. But soon afterwards I began to be conscious of discomfort at the præcordial region, and this sensation was accompanied by feelings of abdominal distension and a desire to expel gas from the chest. The præcordial uneasiness at length grew into pain, extending to both sides of the thorax and to the arms. The pulse had now begun to run rapidly, with intermissions at the end of every five or seven beats. It was small, feeble, and compressible. After a rest of a few minutes' duration, which brought relief, I continued on my way, but I had not gone more than seventy or eighty paces further when pain and sensations of gastric distension recurred and under the influence of rest or the expulsion of flatus again abated. These experiences were repeated several times before I came to the end of my journey."

The following account of an anginal attack is given by the same patient:—

CASE 8.—"On the morning of 7th March, 1908, while reading the daily paper after a breakfast consisting of a rasher of bacon, a few pieces of dried toast, and a cupful of coffee I became conscious of a dull aching pain at the chest. Afterwards, for a few seconds only did my mind continue centred in the news. For the pain, at first felt in the mid-line beneath the upper part of the sternum, was now extending upwards to the throat, finally to reach the molar region of the jaws, backwards towards the scapulæ, and laterally to the axillæ, elbows, and wrists. Moreover, every moment it was increasing in intensity.

The most extreme manifestation was focussed, and could be located, with some degree of exactitude, in the region lying behind the *manubrio-gladiolar synchondrosis*, while painful sensations of less magnitude continually radiated from this centre towards the back, neck, and arms. Pain did not extend below the plane of the diaphragm, neither was it accompanied by faintness, sickness, or embarrassment of breathing. The pulse was irregular, its rate was rapid enough to be beyond my powers of computation. The radial artery, usually full and strong, felt small and thread-like. The skin was wet with perspiration.

It is said that persons stricken by angina pectoris are distressed with forebodings of impending death. I am not conscious of having entertained any apprehensions of this character. My mind was clear and capable of concentrated thought. I considered the situation for a few seconds in expectation that the symptoms would pass off, but the pain gathering strength rather than abating I determined that something must be done quickly to obtain relief from my intolerable sufferings. At length I wrote a prescription for nitrite of amyl and sent it by messenger to a neighbouring chemist. The effort attendant upon this action greatly aggravated my sufferings. Neck and molar pain was intensified. Vision became affected. Objects seen at a distance across the room seemed to stand in a dark field surrounded by mist which rolled in eddies from centre towards circumference.

I had been in extreme pain for twenty-five minutes when the messenger returned, bringing with him a supply of nitrite of amyl capsules. Taking one, I crushed it and inhaled the vapour. Immediately I felt relief, which first reached the jaws, neck, and arms, and afterwards the chest. A sore feeling still remained in the substernal region which afterwards was removed by inhalation of fumes from a second capsule. Fifteen minutes later I was attending to the requirements of patients waiting to see me, and, except for some shakiness of the limbs, feeling no worse for my recent experiences."

The omission of any reference to gastric symptoms by the patient in the description of the latter attack does not imply their absence. Severity of pain during a seizure often obscures minor observations, and gastric symptoms in angina pectoris, although obvious to a bystander, are rarely commented on by the patient himself. In several attacks of a similar nature in the case of this patient I have been present, and have observed manifestations which are unmistakeably gastric in their origin.

Both forms of seizure are varieties of a type in which pain constitutes the most prominent symptom. The first cited differs from the second in the minor severity of its symptoms and in the frequency of its occurrence. Coming on when exercise is engaged in, its occurrence is exceedingly frequent, but since abatement of the seizure takes place on the cessation of exercise, its severity is but a faint counterpart of that of the other variety, which pursues its course to the end unaffected and unrelieved by rest. The first-named variety begins during exercise, is sustained by exercise, and subsides with the cessation of exercise, while the latter commences usually during periods of rest, runs a course independently of any apparent sustaining influence, and continues unrestrained, except under appropriate remedies, to its destined end.

CASE 9. *Description of the anginal attack by R. Quain.*[7]—An attack of angina pectoris commences suddenly with pain in the region of the heart, generally on a level with the lower end of the sternum. The pain is severe and of grasping, crushing, or stabbing character; it extends sometimes across the chest, but more frequently backwards to the scapulæ and upwards to the left shoulder and arm. The pain is accompanied by a distressing sense of sinking, of faintness, or of impending death. The action of the heart is generally irregular. The pulse at the wrist corresponds, but in some well-marked cases it is regular, tense, and resisting. A fear of aggravating the pain prevents

[6] Heart Disease, p. 55.

[7] Dictionary of Medicine, 1882, p. 51.

the patient from breathing, although the respiratory function may not be interfered with. The expression is anxious, the face is pallid, and the lips are more or less livid. The whole surface of the body is pale cold, and covered with a clammy sweat. Flatulence is often present, urine in some cases is passed at short intervals and generally in abundance. The sense of faintness causes the patient to seek support and he rests on any object by which this may be obtained. The attack having lasted for a variable time—from a few minutes to one or two hours—comes to an end, either by a sudden cessation of the more urgent symptoms or by their gradual disappearance.

Schema B.

Comparison of the symptoms of the painful type of the simple gastro-circulatory seizure with those of the painless.

Symptoms of painless type of simple gastro-circulatory attack.	*Symptoms of the painful type of gastro-circulatory attack or angina pectoris, observed by authors and recorded by them.*
Gastric Syndrome.	
(a) Symptoms representing operations engaged in with the object of opening, lubricating, and straightening the œsophageal tube.	
(1) Free flow of saliva.	"*Abundant flow of saliva.*" (Mackenzie: Diseases of the Heart, p. 39.)
(2) Swallowing movements.	*Swallowing movements.* "*Air-sucking and swallowing.*" (Ibid., p. 55.) "*Difficulty in swallowing.*" (R. Quain: Dictionary, p. 53.)
(3) Retching.	"*Eructation.*" (Mackenzie: Heart Disease, p. 47; Douglas Powell: Allbutt's System, vol. v., p. 48.) "*Flatulence is often present.*" (R. Quain: Dictionary, p. 51.)
(b) Symptoms representing operations engaged in with the object of the establishment of a firm diaphragmatic cushion.	
(1) Deep inspiratory act.	"*The patient has to stand still and take a great deep inspiration.*" (Mackenzie: Diseases of the Heart, p. 16.)
(2) Fixation of the muscles of the chest wall.	"*Pain associated with feelings of constriction as if a mailed hand grasped the chest.*" (Balfour: Twentieth Century of Medicine, p. 445.) "*Thorax compressed.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Sense of fixation of the chest walls.*" (Mackenzie: Diseases of the Heart, p. 45.) "*Fixation of the chest.*" (Whittaker: Twentieth Century of Medicine, p. 445.) "*Tightness across the chest,*" (Mackenzie: Diseases of the Heart, p. 45.) "*A sense of constriction independent of pain.*" (Ibid., p. 45.) "*Grips the chest, causing patient to take deep inspiration.*" (Ibid., p. 45.) "*Sense of contraction of chest.*" (Bristowe's Medicine, p. 519.) "*Feeling of great tightness over ribs.*" (Ross: *Brain*, vol. x., p. 355.) "*Cannot take deep breath.*" (Bristowe's Medicine, p. 519; Quain's Dictionary, p. 50.) "*Breathing oppressed and restrained.*" (D. Powell: Allbutt's System, vol. vi., p. 48.)
(3) Contraction of the diaphragm and muscles closing aperture of the glottis. Hiccough.	"*Diaphragm involved.*" (R. Quain, Dictionary, p. 50.) "*Laryngeal spasm.*" (Ibid., p. 50.)
(c) Symptoms representing operations determining the expulsion of the gastric contents.	
(1) Attack terminates in eructation of flatus.	"*The case may end by expulsion of air from the chest.*" (Mackenzie: Diseases of the Heart, p. 47.) "*Eructation gives relief.*" (D. Powell: Allbutt's System, vol. vi., p. 49.)
(2) Attack terminates in expulsion of gastric contents.	"*Patient vomits and becomes easier.*" (Allbutt's System, vol. vi., p. 49.)
Circulatory Syndrome.	
Painless type of simple gastro-circulatory attack.	*Painful type of gastro-circulatory attack (angina pectoris).*
(a) Symptoms representing operations determining influx of arterial blood to the splanchnic region.	
(1) Falling blood pressure.	"*Blood pressure falls during attacks.*" (Mackenzie: Diseases of the Heart, p. 47.)
(2) A copious flow of pale urine follows the attack.	"*A copious flow of pale urine.*" (D. Powell: Allbutt's System, vol. vi., p. 33.) "*Urine always pale, abundant, and of low specific gravity.*" (Mackenzie: Diseases of the Heart, (p. 47.) "*Urine passed in abundance.*" (R. Quain: Dictionary, p. 51.)
(3) Disturbance of beat-rate.	"*Pulse 180.*" (D. Powell: Allbutt's System, vol. vi., p. 50.) "*Pulse-rate slow.*" (Mackenzie Diseases of the Heart, p. 47.) "*Decidedly infrequent.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Heart often beats twice to one radial pulse.*" (Ibid.) "*Pulse 100.*" (Ibid.) "*Pulse rapid beyond computation.*" (Verdon: Heart, vol. i., p. 230.)
(4) Beat force feeble.	"*Beat force feeble.*" (Mackenzie Diseases of the Heart, p. 47.) "*Pulse weak.*" (D. Powell: Allbutt's System, vol. vi., p. 50.)
(5) Artery small	"*Artery small but no spasmodic contraction.*" (Mackenzie: Diseases of the Heart, p. 47.) "*Pulse scarcely perceptible.*" (Bristowe's Medicine, p. 520.)
(6) Rhythm irregular; intermissions.	"*Rhythm irregular, intermissions.*" (Mackenzie: Diseases of the Heart, p. 47; D. Powell: Allbutt's System, vol. vi., p. 50.) "*Action of heart irregular.*" (R. Quain: Dictionary, p. 50.)
(7) Constricted veins.	"*Constricted veins.*" (Verdon.)
(8) Pallor.	"*Pallor.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Face pallid.*" (R. Quain: Dictionary, p. 50.) "*Face suddenly becomes pale.*" (Bristowe's Medicine, p. 519.) "*Surface of body becomes pallid.*" (R. Quain: Dictionary, p. 50.)
(9) Coldness of skin.	"*Whole surface of body cold.*" (Ibid.) *Coldness of surface.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Suddenly becomes cold.*" (Bristowe's Medicine, p. 520.)
(10) Faintness.	"*Sense of faintness.*" (R. Quain: Dictionary, p. 51, 1882.)
(b) Symptoms representing operations determining compensatory vaso-constriction in the somatic and thoracic regions.	
(1) High tension of arterial wall.	"*Pulse small, hard, thready, and scarcely perceptible.*" (Allbutt's System, vol. vi., p. 50.) "*Diminution in size of pulse proceeding almost to extinction, a mere tightened thread being felt under fingers.*" (Ibid., p. 49.) "*Small pulse and of high tension.*" (Ibid., p. 34.)
(2) Splanchnic effect upon sweat glands.	"*Streaming with perspiration.*" (Ibid., p. 50.) "*Covered with sweat*" (R. Quain: Dictionary, p. 50.) "*Cold sweat.*" (Allbutt's System, vol. vi., p. 47.) "*Clammy sweat.*" (Bristowe's Medicine, p. 519.)

Further Points of Comparison.

Painless type of simple gastro-circulatory attack.	*Painful type of gastro-circulatory attack (angina pectoris).*
(1) An attack is excited in the predisposed by oscillatory movements of the body occasioned by walking, running, swinging, or by a heaving movement as when aboard a boat at sea.	"Exercise induces an attack." (Bristowe, p. 519.) "On taking exercise premonitory symptoms are felt." (D. Powell: Allbutt's System, vol. vi., p. 48.
The attack is hastened by the presence of food, fluids, and flatus in the stomach, and probably results from the splashings of the contents against the gastric walls. A monotonous repetition of these impulses results in a summation of stimuli which ultimately induces activity of the implicated nerve centre.	"Flatulent distension of the stomach is frequently an exciting cause" of anginal attacks. (D. Powell: Allbutt's System, vol. vi., p. 29.) "Flatulent distension is a frequent concomitant of anginal paroxysms." (Ibid.)
This form of attack usually comes on after the patient has been under the influence of the movement for several minutes, and it undergoes abatement when the movement ceases.	"An oppressive meal of indigestible food brought on a first and distressing anginal attack followed by others." (R. Quain: Dictionary, p. 53, 1882.)

In some cases of gastro-circulatory attack in which irritability of the stomach or its nerve centres is a marked feature, a change of position from the horizontal to the vertical, rising from a chair walking across a room may precipitate an attack.	"In one of Stoke's patients the slightest muscular effort—that simply of moving his feet in bed—sufficed to precipitate an attack. The patient therefore went to bed wearing his clothes." (Whittaker: Twentieth Century of Medicine, vol. iv., p. 444.)
(2) Another variety of attack is excited by the presence of offending bodies in the stomach, often resulting from delays of digestion, the retention of undigested food, and the biochemical changes taking place in it.	"Dyspepsia is a frequent exciting cause of anginal attacks." (D. Powell: Allbutt's System, vol. vi., p. 29.)
The attack comes to an end after the expulsion of the offending bodies.	"The case may come to an end by expulsion of air from the chest." (Mackenzie: Diseases of the Heart, p. 47.) "Patient vomits and becomes easier." (D. Powell: Allbutt's System, vol. vi., p. 49.)
(3) An attack sometimes comes on as a result of sensory impressions or strong emotion.	"Emotional disturbance, fright, and pain will produce attacks." (Allbutt's System, vol. vi., p. 29.)
(4) The attack does not always come to an end upon the cessation of the impression which excited it. It is then probably caused by a chronic irritable condition of the nerve centres, or by the presence of a toxin in the blood stream.	
(5) The attack often comes to an end upon the administration of amyl nitrite, or nitro-glycerine.	"Amyl nitrite acted instantaneously." (Mackenzie: Diseases of the Heart, p. 50.)

Many of the symptoms referred to in the above schema, such as coldness of the skin, sweating, and pallor, when looked upon singly appear of little significance, but when seen as members of the orderly array of symptoms constituting the syndrome their importance is self-evident. They are then recognised as marks representing processes which move in obedience to economic purpose.

Thus, when we observe coldness of the skin, general pallor, shrinkage in the calibre of arteries and veins, and an almost empty pulse, we know that attenuation in the volume of the arterial stream traversing the vessels of the somatic region exists, and when we notice the presence of a feeble irregular, and intermitting pulse in conjunction with these symptoms we conclude that the volume of blood entering the heart is also small. Moreover, at the same time proof is not wanting of a dilated state of the vessels of the splanchnic region. A falling blood pressure observed at this stage of the seizure furnishes incontestable evidence of the existence of this condition, and the secretion of an abundance of pale urine retained during the course of the seizure but passed soon afterwards is confirmatory evidence of a strong order.

Consequently it may be inferred that symptoms occurring in the penultimate stages of the painful and painless types of the gastro-circulatory seizure, as scheduled under "Circulatory syndrome, Schema B," alike afford evidence of a circulatory crisis in being, in which the blood stream withdrawn from the coverings of the body, from the nerve centres in the medulla, and from the heart itself is massed in the splanchnic lacuna.

As all processes taking place in the animal organism are set into motion, controlled and directed in accordance with an economic purpose, so the gathering of the bulk of the blood volume in the splanchnic region and its displacement from accustomed channels observed in the gastro-circulatory attack is effected for a definite end. This purpose and the reasons thereof are referred to in the early paragraphs.

The resemblance existing between the painless and painful types of seizure observed in the schema renders it probable that they both belong to the same group, that the processes underlying the symptoms are directed from the same or associated centres, and in fact that the anginal attack is either a gastric reflex or springs from direct irritation of gastro-circulatory nerve centres.

The pain symptom in angina appears to be associated with spasmodic and patchy contraction of cardiac and arterial muscle occurring during the compensatory vaso-constrictor impulse and at a period when arterial blood is massed in the splanchnic region. This symptom I have treated at some length in a previous article.[8]

Streatham Hill, S.W.

[8] Practitioner, March, 1910.

FOUR CASES OF SPORADIC CRETINISM IN ONE FAMILY.

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THIS quaint little family with whom I have been brought in contact during school medical inspection is, I think, deserving of medical record for the following reasons:—(*a*) Sporadic cretinism is not common in this country; (*b*) four cases in one family is still more uncommon; and (*c*) four cases all with enlarged thyroid glands is rare.

Family history.—The parents of my cases are both strong, healthy, and temperate. The father is strong and his father was known to be a strong, healthy man. The father is of a sanguine and rather lethargic temperament; the children take after him in colouring of hair and eyes—the latter are somewhat almond-shaped and dull. The mother is a strong, healthy, hard-working housewife. She is the second wife and mother of all four children. The only child by the first wife is 19, tall and strong. Neither parent knows of any antecedents affected with swellings in the neck or stunted growth.

Locality.—There is nothing in the geology or water-supply of the district that could influence any goitrous tendencies, as is found where goitre is endemic. The children have not been imported from a goitrous district, and were all born in the same town.

Personal history.—There are three boys and one girl under consideration.

Name.	Sex.	Age.	Height.	Normal average height.
A. B.	M.	12 9/12 years.	3 ft. 9 in.	4 ft. 7 in.
B. B.	M.	11 ,,	3 ft. 7 in.	4 ft. 4½ in.
C. B.	M.	7 1/12 ,,	3 ft. 4 in.	3 ft. 11 in.
D. B.	F.	5 5/12 ,,	3 ft. 2 in.	3 ft. 4 in.

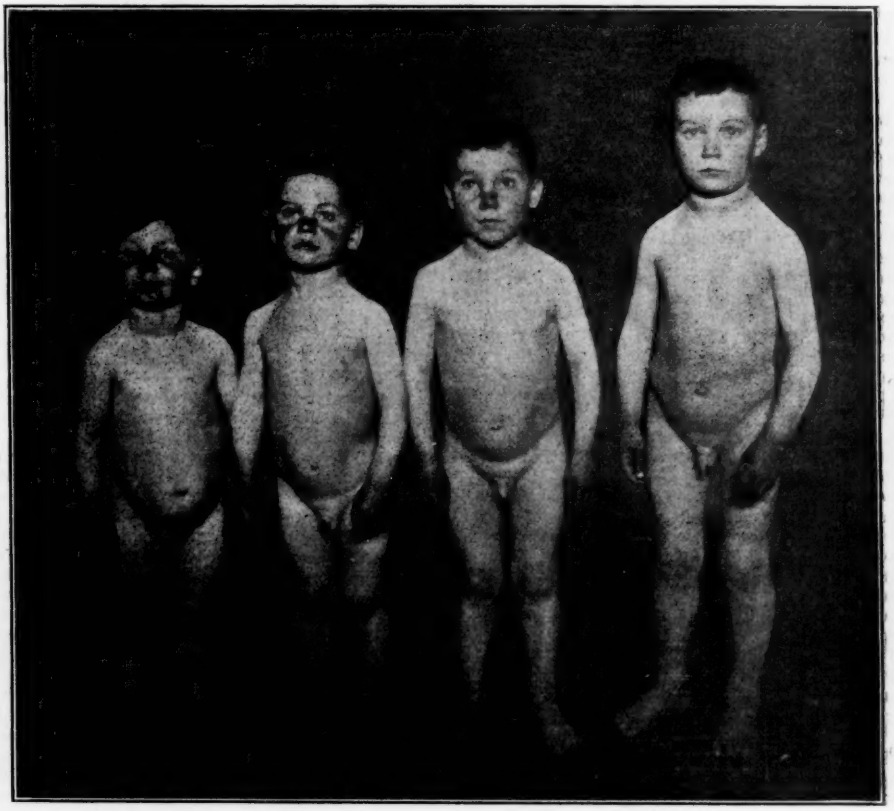
There is also a baby ten months old, who at present shows no signs of cretinism, though a colleague who saw the child some months ago asserts that it is becoming altered to a more Mongolian type of face. The mother says the child is very "nervy and jumpy." Two children were still-born. All the children were born with difficulty owing to their large size. This reason is given for the still-birth of the two mentioned above. The children all grew well until they turned three years, when growth became very slow, and about this time the swelling in the neck began to appear.

Symptoms: 1. *General.*—The three boys, as seen by the table given, are well under the average height. This does not apply so much to the girl, who has only lately stopped growing; she is 2 inches below the average height. The four are dull, placid, and inactive; they do not play and they dislike activity. They are, however, clean, affectionate, and polite. They have a fixed stolid expression, but can be easily amused or made to laugh. The mother says they weep on being slightly corrected or spoken sharply to. Their speech is somewhat hoarse, toneless, and short-sentenced. The sight and hearing are normal. The gait is slow and deliberate, but not markedly clumsy, though waddling and stiff. The patellæ are small and the feet are blue and clammy. The face has a myxœdematous look, the neck and shoulders are massive in three of them, and the hands are broad, stumpy, and cold. The nails are healthy. The anterior fontanelles are not patent. The eyes are rather wide set and have a somewhat Mongolian appearance in three of them. The nose is broad, thick, and freckled, and the mouth large. The teeth are fair. The hair is coarse and the scalp scurfy. The skin is somewhat rough and dry. The thyroid gland is enlarged in each case, though one lobe stands out more prominently than the rest of the gland. They each have strong-looking broad backs and buttocks, with a tendency to a protuberant abdomen and some lordosis. They were all late in walking. They all feel the cold very much, and generally huddle round the fire. The two eldest stand about the room like two old men, seldom speaking, and never wanting to go out for a walk or game.

A photo taken four or five years ago shows well the broad pug-nose and the thick lips of the three boys, who the mother said looked like niggers.

2. *Special.*—A. B. is nearly 13 years old and is 45 inches in height. He has had scarlet fever, measles, and whooping-cough. He has the coarsest hair and is perhaps the most typical cretin of the group, though he is not quite so lethargic as his second brother. Both testicles are present but undescended. He is 5 inches taller than the average child of five years.

B. B., the second boy, is 11 years old, is 43 inches in height, and weighs 4 stones. He has had measles, whooping-cough, and scarlet fever. He is very constipated and has gone a fortnight without an action of the bowels. He would as a baby lie for hours in his cradle without moving a muscle, and with his eyes fixed. He becomes blue and breathless on exertion, as is sometimes the case with cretins. He has one testicle in the scrotum; the other has not descended.



A family of cretins.

C. B., the third boy, is nearly 8 years old, is 40 inches in height, and weighs 3½ stones. He is more intelligent and active than his brothers, and will go errands for his mother. He has the largest tongue and the least enlargement of the thyroid of the group. His teeth are worse than the others. He has some lordosis and a waddling gait, dragging and shuffling his feet. He has one testicle in the scrotum; the other cannot be felt. His tibiæ are somewhat curved.

D. B., the girl, is 5 years and 8 months old, is 38 inches in height, and weighs 3 stones. She has had pneumonia and scarlet fever. She is not so dull as her three brothers and walks rather better. She has the largest thyroid, also a protuberant abdomen and umbilicus. In proportion she has the heaviest-looking neck and shoulders.

Report of schoolmaster as to their mental and intellectual capabilities.—A. B. Always at tail end of class. Very attentive, but does not grasp what is taught him. Can work simple operations in arithmetic with help of paper but not without. Memory very weak; cannot learn poetry by heart. Very happy in school, seldom absent.

B. B. Always at bottom of class. Very much weaker in intelligence than A. B. Quite incapable of grasping what is taught him. Cannot work the simplest operations in arithmetic. Reading is very poor, but improving. Memory very weak, but can repeat little bits of poetry. Very happy in school, and seldom absent.

D. B. Came to school in September, 1909. Not incapable of learning, but very very slow. She knows most of her sounds; cannot distinguish "b" from "d" nor "q" from "p." No idea whatever of number. No control of her fingers; cannot write or draw. The essence of good nature and willingness. Perfectly happy at school.

C. B. Like D. B. in all respects, except that he writes well. Perfectly happy in school.

Remarks.—Cretin is derived by some from Creta = chalk, which explains itself, but not the etiology of the disease. One synonym (a loosely worded one) is infantile myxœdema; this only applies to children up to 15 years. When symptoms of cretinism are present at birth they are due to an absence or arrest of development of the thyroid gland; but where cretinism appears during the first few years of life (as in my cases) it is evident that the gland has been fully formed at first, but that subsequently a degeneration, with atrophy of true gland tissue, has developed. My cases might be called cases of goitrous cretinism to distinguish them from cases of juvenile myxœdema; the latter term should only be applied where the thyroid is embryologically not developed or at most insufficiently so, and, after functioning for a while, atrophies. Rushton Parker[1] says that "cretinism due to goitrous degeneration of the thyroid seems to be disappearing from this country." This he attributes to improved sanitation and to the opening up of secluded valleys which he considers "are the worst breeding grounds of goitre and

[1] Brit. Med. Jour., August, 1896.

which are sufficiently secluded and benighted to induce frequent intermarriage among goitrous families."

It generally requires at least two generations to produce cretinism—goitre appearing in the first generation and cretinism only in the second or third. About 60 per cent. of cretins are females.

Sixty years ago goitre and cretinism were endemic in Somersetshire, as is described by Dr. Hugh Norris in the *Medical Times and Gazette* in 1848. In later years two new centres have been discovered—one in Khokand, Turkestan, and described by M. Guillaume Capus in his book "Les Médecins et la Médecine en Asie Centrale," the other by Dr. T. J. Tonkin in Gigata in Northern Nigeria, who estimated that 20 per cent. of the population had goitres. Jones, commenting on a case of goitre in mother and child, says in the *British Journal of Children's Diseases* that "it is not certain that there is any disease of the thyroid that is hereditary in the biological sense—i.e., is due to a transmissible innate variation; so that any part that heredity may possibly play must be an indirect one connected with perhaps the susceptibility to certain poisons." Leonard Williams (author of "Adenoids, Nocturnal Enuresis, and the Thyroid Gland"), in "Folia Therapeutica," says that "when there is reason to believe that the defect in the thyroid is congenital, it is nearly always to the mother, very seldom to the father, that the responsibility attaches." He also says that "many women who are thought to be sterile are only so because of the general failure to recognise the paramount importance of the thyroid gland in the function of reproduction."

Menstruation is practically absent in female cretins, but Wellesley Kendle showed a case before the Barnstaple division of the British Medical Association of a cretin, aged 9 years, who had menstruated from the age of 5 years and 2 months, in large amount, and every two to four months. After being put on thyroid extract the menstruation ceased. Byrom Bramwell reported a case of sporadic cretinism without amenorrhœa in THE LANCET. A patient, aged 36 years, whose height was 36 inches, with all the signs of cretinism, had menstruated regularly after the age of 25. Her intellectual development was that of a child of 5 or 6 years. During normal menstruation and pregnancy the thyroid gland enlarges; this opens up the large question of the relation between thyroid and ovarian secretions and cannot be discussed here.

Morbid anatomy and pathology.—There are three classes of thyroid inadequacy described—viz., (*a*) absence of thyroid gland; (*b*) atrophy of thyroid gland; and (*c*) with goitre. My four cases belong to the third class, and comparatively few sporadic cretins have goitre, in which respect they differ from endemic cretins, in whom goitre frequently occurs. Cretinism may develop in utero, but as a rule nothing is noticed until the third or fourth year, as in my cases. "The severity of the symptoms is proportional to the amount of destructive disease in the gland; the less the amount of secretion passing from the gland into the blood the greater the severity of the symptoms, just as in myxœdema in the adult."[2]

Differential diagnosis.—Mongolian idiocy has to be distinguished from cretinism, but the former is smiling and observant, while the latter is dull, apathetic, slow, and expressionless. Both may be treated by thyroid extract, but this treatment is disappointing in the case of Mongols. Achondroplasiacs may appear like cretins by the arrest of growth in their long bones, but this is noticed in infancy, whereas in cretins the disproportion between limbs and body only becomes evident later. Achondroplasiacs are not mentally deficient, and the skin and hair are natural, nor is there any apparent atrophy or hypertrophy of the thyroid gland.

Hill Abram has shown a case of the rare disease, cleidocranial dysostosis. The clavicles were absent, the cranium was brachicephalic, and the anterior fontanelle was open. The distorted vertex and the deficient development of the facial bones, the thick neck, short stature, waddling gait, undeveloped genitals, coarse hair, and broad hands, suggested some degree of athyroidism; on the other hand, however, the lad was intelligent, though emotional, and had no myxœdematous appearance.

Treatment.—My four cases have had practically no treatment. One boy was treated with thyroid gland in tablet form for a short time, but it was given in too large doses, and brought on nervous symptoms with trembling and tachycardia. I have advised the mother to go on with the tabloids she had, giving each child regularly a small dose once a day for from four to six weeks, then leave off for a week, and again proceed. Also, that the children should see a medical man at regular intervals. Diarrhœa is often a symptom of excessive dosage by thyroid extract.

In the treatment of cretins by thyroid gland one must bear in mind that owing to the rapid growth of a somewhat soft long bone deformities such as bow-legs may arise, and a scoliosis may become more marked unless care is taken to secure rest, massage, and properly controlled exercises. Treatment of marasmic children by thyroid gland is advocated by Leonard Williams and G. A. Sutherland. Speaking from an educational point of view, I think the ordinary day-school is the best place for cretins between the ages of 5 and 15 years, provided they are not slobbery, repulsive idiots, and provided that they are not exerted physically by drill nor mentally by lessons.

The accompanying photograph taken for me by my colleague—Dr. T. Lauder Thomson, the county bacteriologist—shows many features of interest, The goitres are apparent, also the short femora and rather curved tibiæ—the dark hands and feet due chiefly to the blue and cold condition, the broad, putty noses, and the peculiar eyes of the three youngest are noticeable. On measurement it will be found that the umbilicus is almost exactly midway between the soles of the feet and the crown of the head in each case.

County Buildings, Ayr.

[2] Murray: Disease of Thyroid Gland.

A NOTE ON THE TREATMENT OF THE PARTIALLY DROWNED.

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HAVING lately had to deal with a number of cases of drowning, I venture to put forward some conclusions I have arrived at, especially as regards their treatment. Apart from sequelæ, death from drowning appears to be due to (1) asphyxia from the mechanical action of the water entering and blocking the air passages; or (2) shock from sudden and prolonged immersion. These may be combined, but in most cases one or other is the prominent symptom. With regard to the first class of cases, if any considerable quantity of water has entered the bronchial tubes, unless it is very quickly expelled by a voluntary effort, I look upon such cases as hopeless. The condition is shown by the continued expulsion of froth when artificial respiration is performed, although the mouth and pharynx have been well wiped out before commencing.

It is the cases in Class 2, where shock is the prominent feature, to which I wish especially to call attention. This class includes most of the cases which there is any prospect of saving. In these cases there are usually unconsciousness, a feeble and intermittent pulse, intermission or complete stoppage of respiration, and, in fact, all the signs of severe shock. Often after the mouth and pharynx have once been cleared no more fluid or froth is extruded, the stoppage of respiration having acted, to a certain extent beneficially, in preventing the inspiration of fluid.

The usual directions given for the treatment of the apparently drowned are to perform artificial respiration and apply warmth. If, however, we look upon such cases as cases chiefly of shock, it is obvious that something more than this may be done. Shock may be looked upon as the result of a number of afferent impulses partially paralysing the vasomotor centre, and so causing a rapid fall in blood pressure; the result of this is that the greater portion of the blood of the body stagnates in the splanchnic area, and the brain, including the circulatory and respiratory centres, is robbed of its proper supply, and these centres are still further depressed. The result to be aimed at, therefore, is the driving of the blood from the abdomen, so that the brain may receive its proper supply. This I aim at by an attempt at auto-transfusion as follows. Having started an assistant on artificial respiration I firmly bandage the legs from the feet upwards. A roller towel is then passed round

the patient's abdomen, the two ends crossing in front. One assistant is told off to each of these ends. As the arms are brought down to the chest in the *expiratory* movement of artificial expiration (Silvester's method) these two assistants, grasping the towel-ends firmly with their right hands, pull them, at the same time making pressure on the abdomen with their left hands. In this way considerable squeezing of the abdomen is obtained. As the *inspiratory* movement commences the pressure is relaxed so as not to interfere with the expansion of the lungs. The process is continued synchronously with the movements of artificial respiration. My idea is that this acts beneficially in two ways: (1) it assists, by pressing up the diaphragm, to more completely empty the chest with expiration; and (2) it squeezes some of the excess of blood from the abdominal cavity. The bandaging of the legs and arrangement of the towel can be very quickly carried out with assistance, of which there is usually no lack in these cases.

Gravity should also be made to assist the flow of blood to the brain by keeping the head at a lower level than the body. I give a hypodermic injection of ether (30 minims) and usually one of strychnine as well. The objection to the use of these stimulants—that they stimulate an already tired centre and are quickly followed by increased depression—seems hardly to apply in cases of drowning, as when once reaction has set in recovery is usually rapid. Adrenalin chloride given hypodermically (30 minims of a 1 in 1000 solution) should act beneficially by raising the blood pressure. I have not yet tried it in a case of drowning, but intend to do so on the next suitable opportunity.

In conclusion, it should not be forgotten that the unconsciousness and other symptoms may be due to an injury sustained at the moment of falling into the water. As an instance I may mention a case I saw last winter in the North Sea. Owing to the capsising of his boat a man was thrown into the sea. As all the other boats and trawlers were to leeward of him and a strong sea was running, it was some time before a boat could reach him and pick him up. I could see the man on the water and noticed that he did not move or make any voluntary effort to save himself. When he was got aboard neither pulse nor respiration was perceptible. I at once commenced artificial respiration, but soon realised that the case was quite hopeless. It was then, when I came to examine him more thoroughly, that I noticed a wound in the parietal region with a well-marked depression of the bone. He had evidently been struck on the head by the boat as it overturned. It was, of course, out of the question to think of any operative treatment then, but the possibility of such an accident is to be kept in mind, as such a condition is otherwise not likely to be noticed in the hurry and confusion of attempting to resuscitate a patient.

DONATIONS AND BEQUESTS.—By the will of the late Mrs. Wilhelmina Bedford, who has left estate valued at £20,500, the residue of the estate with remainder as to one moiety is bequeathed to University College for the endowment of scholarships for the promotion of the study of zoology, and one moiety for the benefit of King's College, Cambridge.—Subject to a life interest, Miss Mary A. D. Harland has left £1000 to the Salford Royal Hospital.

SANITARY ASSURANCE ASSOCIATION.—The twenty-ninth annual meeting of the Sanitary Assurance Association, the offices of which are 7, Pall Mall, London, S.W., was held on June 10th, when the annual report was adopted, and Mr. Walter Butler, M.Inst.C.E., re-elected President. The annual report concluded with the statement that the advance made by science generally during the past half-century has been nowhere more thorough and manifest than in the domain of sanitation and hygiene, and claims that the association has been largely instrumental in raising the standard of sanitation to that which now prevails. At the time the association was founded hardly any standard was recognised, and the work which it did has certainly been productive of much good. The association intends to continue to enforce the fundamental principles which it was founded to maintain; and as the importance of sanitary efficiency in buildings of all sorts is now becoming generally recognised we can imagine that the work of the association will increase.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

FACED RICE AS A DANGER TO HEALTH.

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AND
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IN THE LANCET of Dec. 18th, 1909,[1] one of us described a case in which a pancreatic calculus of most unusual composition was discovered. The analysis of the calculus showed:—

Carbonate of lime	13·5 per cent.	Soluble.
Magnesia	Trace.	
Silica	68·5 per cent.	Insoluble.
Alumina	18·0 ,,	
Ferric oxide	Trace.	
Magnesia	,,	

"There was no trace of phosphate in either the soluble or insoluble portion, and no oxalate. The sand appeared to form a nucleus for the carbonate of lime, and the grains appeared to be coated over with the carbonate." The presence of so large a quantity of silica and alumina was difficult of explanation.

More recently one of us has had samples of rice submitted for analysis. The rice samples were specially examined for mineral facing, as a practice has sprung up of facing rice with mineral matter, chiefly steatite, in order to improve its appearance, and no doubt also to enable inferior and damaged rice to be sold as the best. A full description of this practice is given in Dr. Hamill's report to the Local Government Board on the mineral facing of rice, but briefly it consists of treating the rice with oil, and then polishing it in drums with a mineral powder. It is carried on both in this country and abroad. In this way a mineral facing is left on the rice which is very difficult to detach, and practically the whole of it passes into the food when cooked.

The facing on the samples examined amounted to from 7 grains to 100 grains per pound of rice, and its composition consisted mostly of steatite, which is essentially a silicate of magnesium, but many samples were faced with a mineral consisting of silicate of alumina containing only a small quantity of magnesium. The facing removed from the rice was examined under the microscope, and in many cases was found to consist of sharp angular particles, very similar in appearance to broken glass. It seems probable that these samples were faced with ground mica and not steatite. Mica is more expensive than steatite, as it is used for insulation in electrical engineering, but the residues from electrical works might very well be employed for this purpose.

On May 11th, 1910, a case was heard in the magistrate's court at Flint in which the defendants were ordered to pay the costs of prosecution for selling rice faced with steatite. This particular sample of rice contained 86 grains of steatite per pound of rice. It is clear that it would not take long for a man to consume enough silica to form a nucleus for a calculus such as was found if he ate much rice. The patient from whom the pancreatic calculus was obtained had been in the habit of having a rice pudding for dinner every day for months, and he was the only member of his family who took rice so regularly. The patient himself consumed one pound of rice in from 8 to 10 days. We obtained two samples of rice from the shop where the man's rice was always bought. Only two qualities were stocked in this shop. One of these samples was pure unfaced rice containing less than 1 grain per pound of extraneous mineral matter; the other was a highly polished rice faced with steatite to the extent of 64 grains per pound. As the composition of the insoluble portion of the calculus is so similar to that of many of the

[1] J. G. Taylor: A Case of Syphilis of the Pancreas with a Pancreatic Calculus in the Duct, THE LANCET, Dec. 18th, 1909.

mineral facings found on rice it seems most probable that its origin was due to this facing. If this supposition is correct it seems that the adulteration of rice by facing converts a cheap and wholesome article of diet into a dangerous one. The Local Government Board has proposed a limit of 0·5 per cent., or 35 grains, per pound for mineral facing on rice, but as pure rice does not usually contain more than 1 or 2 grains per pound of extraneous mineral matter and the amount is frequently less than 1 grain it is difficult to see why so large a limit should be allowed, especially as there seems to be considerable danger in the practice.

CANCER WITH BONE METASTASES: CONDITION OF BLOOD.

BY GORDON R. WARD, M.R.C.S. ENG., L.R.C.P. LOND.

THE annotation in THE LANCET of June 4th entitled "Latent Cancer of the Stomach with Metastases in the Bone Marrow and Blood suggestive of Pernicious Anæmia" prompts me to send you a brief account of the following case.

The patient was a woman who had had rapid recurrence of an epithelioma after removal of the left breast for this disease. When seen she had a large mass over the sternum which gave rise to considerable pain, and there were small nodules in connexion with the second and third ribs on the left side. There was also a mass of enlarged glands in the right axilla, but no other metastases were obvious. The apparent involvement of the sternum and ribs suggested the probability of finding blood changes. A count showed: red blood corpuscles, 4,760,000 per c.mm.; hæmoglobin, 65 per cent. (Haldane-Gowers); colour index, 0·68. The normoblasts numbered 382 and the megaloblasts 104 per c.mm. All the nucleated cells were polychromatophile and some showed basophil granulation (Geimsa's stain). The white cells numbered 10,800 per c.mm. A differential count (500 counted) gave polymorphs, 61 per cent.; eosinophils, 0·6 per cent.; monomorphs, small, 31·2 per cent.; monomorphs, large, 4·8 per cent.; and myelocytes, 2·4 per cent. A post-mortem examination was not made on this patient, although she died shortly afterwards. The blood in a case of aneurysm pressing on and eroding the sternum was examined at the same time, but no nucleated red cells were seen.

Westminster Hospital, S.W.

THE INFECTIVITY OF SCARLET FEVER.

BY T. HUNTER, M.A., B.SC., M.D., CH.B. GLASG.,
MAJOR, I.M.S.; CIVIL SURGEON, MORADABAD, INDIA.

THE recent discussion in the columns of THE LANCET on the infectivity of scarlet fever induces me to publish a note on a case of this disease acquired in a remarkable manner.

The patient was a forest officer stationed in a particularly out-of-the-way part of the Sub-Himalayan Terai in India, and he had had no communication with the outer world for months except by letter. He developed a typical attack of scarlet fever. The diagnosis was communicated to him with the remark that it was a mystery how he had contrived to acquire the disease. The explanation of this mystery the patient himself was able to give. By the preceding week's mail he had received from Scotland a letter written by a young brother who had been sent home from school in England on account of an epidemic of scarlet fever in the school. The letter was written at home on notepaper embossed with the home address, so it was presumably notepaper which had not been at school, and the writer, as far as was known, had not had the disease and did not have it later. The case in India was an ordinary example of the disease.

THE annual prize giving at the London (Royal Free Hospital) School of Medicine for Women will take place on Thursday, June 23rd, at 3 P.M. Dr. H. A. Miers, F.R.S., Principal of the University of London, will present the prizes, and Mrs. Garrett-Anderson, M.D., president of the school, will be in the chair.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Cæsarean Section in the Treatment of Eclampsia Gravidarum.—Life History of Fibromyomata of the Uterus.

A MEETING of this section was held on May 26th, Dr. H. MACNAUGHTON-JONES, the President, being in the chair.

Dr. F. J. MCCANN read a paper on Cæsarean Section in the Treatment of Eclampsia Gravidarum. He said that opinions as to treating puerperal eclampsia may be divided into (1) those favouring expectant treatment, and (2) those favouring immediate and rapid delivery, although the majority of obstetricians in this country regard abdominal and vaginal Cæsarean section as being unjustifiable. Some time ago he saw a severe example of eclampsia gravidarum in a primipara aged 26 years. She missed her first period in September, 1907. On April 20th she was not feeling very well and had headache. Suddenly at 8 P.M., without any warning, she had two or three very bad fits. Dr. McCann found her semi-comatose, with livid face and swollen eyelids. The urine withdrawn by catheter was found to be solid with albumin. She had another severe fit. Her pulse was very rapid and her tongue had been badly bitten. It was at once decided to empty the uterus, but under deep anæsthesia the attempts at dilatation produced little effect. Severe fits were constantly recurring, and on more than one occasion she appeared to be dying. The Cæsarean operation was performed at 2.30 A.M.; the child when extracted was dead. After the operation she had only one fit at 8 A.M. Her condition gradually improved, and on April 30th the urine was found to be free from albumin. She is now in good health, but has not again become pregnant. Dr. McCann said that Cæsarean section for eclampsia had a high mortality because it was tried after all other methods had failed, and frequently when the patient's condition was hopeless. He suggested the following indications for this operation: (1) when the fits are severe and recur in rapid succession; (2) when labour has not commenced; (3) when the cervix is difficult to dilate from elongation, hypertrophy, or excessive rigidity; (4) when the mother is moribund and the fœtus living and viable; (5) when labour has commenced and there is found considerable disproportion between the size of the child and that of the pelvis; and (6) when the surroundings of the patient are suitable for a major surgical operation and when the services of an operator skilled in pelvic surgery can be obtained. Out of 28 cases of Cæsarean section the fits stopped completely in 14. Moreover, abdominal Cæsarean section, when rapidly performed, had less tendency to aggravate the fits than other methods of delivery. The author concluded by urging the necessity for a reconsideration of the desirability of rapid delivery in eclampsia, as the mortality from expectant methods of treatment is still about 20 to 25 per cent.—Dr. G. E. HERMAN said that he did not agree that the first indication of treatment was to empty the uterus. In a paper read before the Medical Society of London he had collected 2000 cases of eclampsia, and the comparison of the cases in which the uterus was rapidly emptied with those in which it was not interfered with showed that the fits were not stopped nor was the death-rate appreciably smaller. Dr. McCann had brought forward no evidence to alter this conclusion. The treatment of eclampsia by Cæsarean section had been adopted in many cases in many hospitals before 1902 and since, and the collected mortality was about 50 per cent. He believed that Dr. McCann was correct in putting the mortality of the disease treated by expectant methods at about 20 per cent. The conditions under which Cæsarean section had to be done in cases of eclampsia were as unfavourable as they could well be. He had read and heard many times of the cervix being undilatable; to his mind this only meant that the accoucheur would not give it time to dilate.—Dr. H. R. SPENCER did not think that it was in any way proved that delivery should be at once carried out, but he admitted that Bossi's good results obtained by the use of his dilator raised some doubts on this point. Abdominal section was very rarely indeed called for in eclampsia, for even if rapid

delivery was the right treatment the patient could generally be delivered by the use of Bossi's dilator or vaginal Cæsarean section (both of which methods, however, he regarded with some disfavour) in less time and with less danger than by abdominal Cæsarean section, which seriously endangered any subsequent delivery. Bossi's results gave a maternal mortality of only 9·45 per cent. (14 of 148 cases), and a fœtal mortality of 20·97 per cent., whereas with abdominal Cæsarean section the maternal mortality was six times as great (56·9 per cent.) and the fœtal mortality nearly twice as great (37·5 per cent.).—Dr. AMAND ROUTH said that Zweifel gives a mortality of 28·5 per cent. in cases under expectant, and 11·3 in those under active, treatment. If the patient be in labour relief can often be afforded by rupturing the membranes to relieve pressure, and delivering by forceps when the cervix is dilated. If in any given case rapid delivery is indicated and the cervix is undilated and rigid, he thought abdominal Cæsarean section, by which the child and placenta could be delivered in three minutes, was preferable to vaginal Cæsarean section or Bossi's mechanical dilatation of the cervix. He thought that Cæsarean section would be occasionally useful. He considered that Dr. McCann's indications were excellent, provided the cervix was rigid and undilated, and he thought any serious diminution in urea was another indication of value.—Mr. W. D. SPANTON said that some of the worst cases he had seen were post-partum ones. Abdominal Cæsarean section should be reserved for such exceptional cases as those in which the cervix was hard and undilatable or the pelvis contracted.—Dr. W. J. GOW said that in a case in which he had performed Cæsarean section for pelvic contraction there was a large amount of albumin in the urine, and several eclamptic convulsions occurred. In spite of this the patient made a good recovery. As to the high mortality alluded to, no doubt the patients died from the eclampsia and not from the operation. If the cervix was not taken up and was rigid and undilatable, Cæsarean section seemed to him the simplest and safest method to employ. Such a plan of treatment was, however, only indicated in very severe cases. In his opinion vaginal Cæsarean section was quite unsuitable unless the cervix was already taken up. He thought that emptying the uterus definitely increased the patient's chance of recovery if it could be done without inflicting serious injury upon her.—The PRESIDENT had some years since treated a case of eclampsia at the fourth month complicated with stenosis of the cervix, in which there was great difficulty in dilating the cervical canal. The patient was under chloroform for several hours, but death occurred before the uterus could be emptied. Under the old expectant treatment a certain number of patients always died. Some of the worst cases of eclampsia occurred post partum. Eight years ago he had published in THE LANCET an interesting case in which he had used Bossi's dilator. The uterus was myomatous and the urine contained a considerable amount of albumin; he succeeded in delivering with forceps, but the patient died shortly after delivery. He believed that there was a good deal in the old differentiation of the type of convulsions as denoting its severity—namely, the hysterical, the epileptiform, and the apoplectiform type. An anæmic albuminuric primipara with high blood pressure certainly presented a most dangerous form of eclampsia, and no doubt these patients were more liable to risks of septic invasion. He thought with Dr. Gow that there were circumstances in which Cæsarean section might be the only available method of treatment, when the only two courses open were to abandon the woman to her fate or to give her a chance by operative interference.

Dr. A. J. WALLACE read a paper entitled "A Contribution to the Life History of Fibromyomata of the Uterus." He related the history of ten cases observed over periods varying from 3¼ to 28 years. The first was that of a multipara who developed indications of valvular and mural disease of the heart. The pulse tension began to increase, severe headaches occurred and shortly after a rapidly growing fibroid was detected. Special treatment led to improvement of the cardiac condition and to lessening of the high pulse tension, and following on this double amelioration there occurred diminution in the size of the fibroid. This decrease was slow and gradual at first, but after it had been in progress for three years it occurred in jerks, as it were, each decrease being preceded by a febrile attack. Glycosuria appeared two years after the diminution of the tumour had begun, but it yielded to treatment. The blood pressure became further reduced and the headaches disappeared. In June the patient had a fibroid uterus "as big as the organ at the fourth month of pregnancy" (Dr. H. Spencer). In September of the same year Dr. Wallace found that the uterus was but slightly larger than the normal parous uterus and that it presented no signs of a fibroid. It was suggested that this case supported the conjecture advanced by Strassmann and Lehmann—that as with the new formations of thyroid tissue in Basedow's disease, so in certain cases of new formations of uterine tissues the changes in heart, uterus, and vessels are possibly to be regarded as symptoms of one disease. In the remaining 9 cases one was under observation for 20 years from the time when the impacted fibroid uterus was pushed up out of the pelvis until the fibroid disappeared entirely. In all of the remaining 8 cases shrinking of the tumours took place, in several to a very considerable extent. An analysis of the cases concluded the paper.—Dr. HERBERT SPENCER expressed his surprise that the tumour in Case 1, which when he examined it was as big as the pregnant uterus at the fourth month, should have completely disappeared in a few months.—Dr. AMAND ROUTH had seen uterine fibroids spontaneously disappear after the menopause, and mentioned an instance of this occurrence. This and cases quoted by Dr. Wallace only proved the desirability of radical operation when serious symptoms were developing, for his patient was a hopeless invalid for over 20 years and barely escaped with her life.—The PRESIDENT said that he was glad to hear Dr. Wallace's opinion that the histories of these cases were not to be taken as affording any argument against operation for myomata. They had now the details of some 8000 clinical histories which proved clearly that the dangers after from 40 to 50 years of age increased directly in proportion to the age.

CLINICAL SECTION.

Exhibition of Cases.

A MEETING of this section was held on June 10th, Mr. A. PEARCE GOULD being in the chair.

Mr. R. C. ELMSLIE showed three cases of enlargement of the Tubercle of the Tibia (Schlatter's disease). The first patient was a boy who, about October, 1908, fell upon the left knee; from that time he had pain in the knee. In March, 1909, the tubercle of the left tibia was enlarged and tender. A radiogram showed the epiphysis of the tubercle apparently separate from that of the head. The swelling and occasional pain in the tubercle had persisted. The second patient was a boy who, on Feb. 10th, 1910, was kicked on the right tibia, in the region of the tubercle; there was no accident to the left side. At the beginning of March he felt pain in the region of the tubercle of the left tibia. Radiograms showed that the epiphysis of the tubercle was separate from that of the head on either side. The third patient was a girl who, in September, 1907, came to the hospital on account of pain and swelling in the knee, without a history of accident. In February, 1910, she returned to the hospital with both knees painful. The radiograms showed that the epiphysis of the tubercle on either side was continuous with that of the head, but there was an additional faint shadow, apparently of an additional epiphysial centre, lying in a superficial mass of cartilage. Mr. Elmslie also showed a case of Fracture of the Humerus at the site of an innocent cyst.—Mr. PEARCE GOULD described a similar case in which a useful arm was secured by making a free opening into what was at first diagnosed as a sarcoma.

Dr. H. D. ROLLESTON showed a case of Jaundice with Areas of Unpigmented Skin. The patient was a man, aged 59 years, who had had jaundice, which came on gradually, since December, 1909, and had progressively lost strength and weight. Over the thorax, abdomen, and back there were a number of elliptical or circular areas, usually about the size of a shilling, which were relatively unpigmented as compared with the remainder of the skin. In the centre of nearly all these areas there was a small cutaneous tumour, in some instances sessile and resembling a mole, in others pedunculated and somewhat resembling molluscum fibrosum.—Dr. F. PARKES WEBER suggested that these relatively unpigmented areas were spots of latent congenital leucodermia, being deficient in the normal pigmentation only, and that they had been brought into prominence by the general jaundiced hue of the skin.

Dr. F. J. POYNTON and Mr. WILFRED TROTTER showed a case of Cardiolysis. The patient was a male, aged 17 years, who was shown to the section 12 months ago. The object in showing the patient again was to add to the accurate knowledge of the after history of patients who had undergone that operation, for it was highly important not only to obtain a clear idea of the value of the operation as a surgical procedure, but also to place it in its correct perspective in the relation of the operation to the course of the disease for which it was undertaken. So far as the present case was concerned, it appeared that the operation had been in itself a successful one, but subsequent developments had shown that the health of the patient had deteriorated from other complications. Dr. Poynton and Mr. Trotter inclined to the view that the case was one of multiple serositis, probably of tuberculous origin, in which the relief of the embarrassed heart had done much to improve the patient's condition, but the disease itself had made decided advance in the respiratory tract.

Mr. J. P. LOCKHART MUMMERY described a case of Hyperplastic Tuberculosis of the Pelvic Colon.

Mr. CYRIL NITCH demonstrated a case of Congenital Hairy Mole.

Dr. WILFRED HARRIS demonstrated a case of Trigeminal Neuralgia of the Left First and Second Divisions treated by injections of alcohol.

Mr. S. A. CLARKE and Dr. A. F. HERTZ showed a case of Phlegmonous Gastritis, in which a cast of the stomach was vomited.

Dr. R. H. HODGSON showed a case of Pulmonary Phthisis with large Cavity, treated by inhalation of ether.

OPHTHALMOLOGICAL SOCIETY.

Optic Atrophy following Use of Arylarsonates in Syphilis.—Congenital Cataract.—Exhibition of Cases.

A MEETING of this society was held on June 9th, Dr. G. A. BERRY, the President, being in the chair.

Mr. ERNEST CLARKE read a paper on Optic Atrophy following the Use of Arylarsonates in the Treatment of Syphilis. The first case was that of a man, aged 46 years, who was given ten injections of 5 grains of soamin every alternate day, and after the last the sight became misty. Several months later he had three further injections of 5 grains. He had vision of barely hand movement in one eye and 6/12 with scarcely any field in the other. Both discs were atrophied. The next patient, aged 49 years, had 10 grains of orsudan on alternate days, and after the ninth injection the sight began to fail. Both discs became atrophied. He then stated what other writers had found after administration of the drugs atoxyl and soamin, and the number of cases in which optic atrophy had followed was considerable. The condition of the discs in these two patients left little doubt that the drugs were responsible. Possibly the combination of arsenic, aniline, and syphilis might be particularly destructive to the optic nerves, but the lesson he wished to point out was that great care should be exercised in the administration of arylarsonates; the eyes should be most thoroughly examined before and during the administration of the drug. That disease of the arteries, kidneys, or liver contra-indicated its use. That the dose should be carefully regulated according to the body weight and age of the patient, and it was doubtful if it ever was safe in anyone over 40 years of age. Colonel F. J. Lambkin, R.A.M.C., who is the great advocate of the treatment, had used it mostly, if not entirely, in young subjects. Mr. Clarke concluded by saying that when the profession had fully recognised the limitations of the use of the arylarsonates it might be that they would prove to be all that could be desired of them, but the question would arise as to the expediency of employing them at all for the treatment of syphilis. It was one thing to risk blindness in being treated for a fatal disease like sleeping sickness, and quite another to risk it in the treatment of syphilis, even if in some cases it were more successful than the ordinary and well-tried methods.—Mr. C. WRAY, in discussing the paper, pointed out the importance of giving the arylarsonates in accordance with the body-weight. Cases of blindness after their administration had been numerous, and it occurred in two sets of cases—after sleeping sickness and after syphilis; 15 per cent. of cases of syphilis recovered without the administration of mercury at all. Too little had been heard about the Wassermann reaction in treatment; it was used chiefly in diagnosis.—Mr. E. W. BREWERTON, the PRESIDENT, Mr. A. H. P. DAWNAY, Mr. R. W. DOYNE, Mr. E. TREACHER COLLINS, Mr. M. S. MAYOU, Dr. E. FARQUHAR BUZZARD, Mr. G. H. POOLEY, and Major MOLE took part in the discussion.

Mr. N. BISHOP HARMAN read a paper giving details of the Inheritance of Congenital Cataract in Nine Families. Of these five were of lamellar cataract, one of coralliform cataract, one of discoid cataract, one of form unknown, as the cataracts had been removed some years ago, and one of posterior polar cataract with microphthalmia. In the families with lamellar cataract several showed an inheritance through several generations and in numerous individuals. In one, a marriage of first-cousins seemed to accentuate it in their progeny. Another of these families showed grave mental disorder on both sides of several generations, several dying mad on the paternal side, and many suffering from epilepsy on the maternal side. The case of posterior polar cataract with microphthalmia was particularly distressing, for of five children born to an apparently healthy couple, of whom two were twin, the four surviving were all irremediably blind from the defective growth of the eye. It was noted that in several instances those affected with congenital cataract were mentally defective.

Mr. DOYNE showed some cases among members of his first family of "Family Choroiditis," and pointed out that the spots were exudations beginning in early adult life, but more generally later, increased very much in middle age, when, though the appearance of the lesion was gross, the sight was not proportionately affected, and, finally, in old age passed into atrophy with very great loss of sight.

Mr. C. S. BLAIR showed a case of Extensive Subconjunctival Rupture in a Buphthalmic Eye, with recovery; also brother of the above patient, also a subject of Buphthalmia, with complete congenital downward dislocation of lens.

Mr. DOYNE showed cases illustrating a form of Word-blindness, Guttate Iritis, also Test Lenses for the dark room.

Mr. A. H. THOMPSON showed a case of Vertical Nystagmus with movement so fine as to escape notice with the naked eye.

Mr. E. TREACHER COLLINS and Mr. A. C. HUDSON exhibited Microscopical Sections of an Eye with Unusual Yellow Patches in the Iris shown at the last meeting. The patches consisted of large polygonal cells with small shrunken nuclei and spongy cytoplasm, closely packed in a fine reticulum in which the degenerated chromatophores of the iris could be distinguished. The large cells were thought to be probably degenerated endothelial cells. A flat preparation of the choroid from the same eye showing very extensive colloid body formation was also shown.

Mr. ARNOLD LAWSON showed a case of Scirrhus of the Orbit.

Mr. W. LANG exhibited a case of Growth under the Conjunctiva.

Dr. RAYNER D. BATTEN showed a case of Raynaud's Disease and Mr. POOLEY a case of Traumatic Condition of the Retina.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

The Artificially Prepared Hypnotics.—Lupus Carcinoma.—The Cammidge Reaction.

A MEETING of this society was held on June 1st, Dr. CHARLES W. MACGILLIVRAY, Vice-President, being in the chair.

A discussion on the Artificially Prepared Hypnotics, their Use and Possible Abuse, was introduced by Dr. FRANCIS D. BOYD. He said that the mode of action of the synthetic hypnotics was a difficult problem. Meyer's hypothesis in explanation of the action of hypnotics was well known, and while it did not explain the action of some, it at least gave a working hypothesis. Briefly stated, the theory postulated that all chemically related indifferent substances which were soluble in fat and fat-like bodies must have a narcotic effect on living protoplasm. The action would be most prominent and powerful on those cells in whose chemical constitution the fat-like bodies predominated, particularly

if they were constituents of the functioning part of the cells. The narcotic tended to collect in the cells of the central nervous system, and so altered their physical condition and induced sleep. The strongest hypnotic possessed the greatest coefficient of solubility in fat. After alluding to the classification of hypnotics in reference to their chemical constitution he referred to types of mild hypnotics as amylene hydrate and chloralamide. The former, given in doses of ½ to 1 drachm, was not depressing, and he had observed no bad effects in cardiac cases. The latter acted well when given dissolved in alcohol, or better still in an acidulated alcohol, as in spiritus etheris nitrosi, though there might be a considerable latent period before its action commenced. The formamide present in this drug counteracted the depressing effect of the chloral. As types of medium strength, Dr. Boyd mentioned paraldehyde, sulphonal, and bromural. The first was one of the safest and most useful, and the disadvantage of its taste might be got over by giving it well diluted as an enema. In favourable cases sleep followed in 15 minutes. In doses of from 2 to 4 drachms per rectum it was a most useful hypnotic in pneumonia. In alcoholic subjects, however, its use was often followed by marked excitement. Sulphonal ought to be discarded because of its slowness of action, cumulative effects, and toxic properties. Bromural was especially useful in cases of emotional excitement. Of the more powerful hypnotics, chloral hydrate, veronal, and trional might be cited as examples. The first was now hardly ever employed, but veronal was very popular at present; it should never be given in the solid form or in milk, and large doses (15 grains) often produced unpleasant effects—e.g., rashes, fever, vertigo, &c. The prolonged use of veronal might induce various nervous phenomena. Trional was useful and induced a reasonably long sleep, but it was often slow in its action; its dose should not exceed 25 grains. A combination of amylene hydrate or paraldehyde with trional gave a rapid and more certain action. Hypnotics which should not be used because of their dangerous effects were isopral, chloralose, chloral-urethane, sulphonal, and tetronal. In cases of nervous excitement the best results might be obtained from a preparation containing bromide, as in bromural. In the insomnia from overwork or worry any of the milder hypnotics might be used, but frequent changes should be made and one hypnotic should not be employed continuously as tolerance was induced and the tendency to the formation of a drug habit was fostered. A hypnotic should never be given undissolved, because it might remain unabsorbed for a considerable period and induce sleep when not convenient. In each case the patient was a personal factor of considerable importance. It never could be determined when a patient might be peculiarly susceptible; universal erythema with pyrexia or vertigo might be produced by a single dose of veronal or chloral hydrate. The relief of pain by the employment of hypnotics might be regarded as an abuse on the part of the physician; in such cases even chloral hydrate induced no true sleep, but merely muscular quiescence. In the treatment of insomnia the physician should treat not the symptom but the diseased condition which induced the sleeplessness. Dr. Boyd advised all physicians who prescribed hypnotics to mark on the prescription "Not to be repeated." The sale of chloral hydrate and sulphonal was regulated by law, yet veronal and other dangerous hypnotics might be purchased freely. This was unsatisfactory. The Registrar-General's statistics afforded little information as to the prevalence of the drug habit. The association of the drug habit with alcoholism was alluded to, and Dr. Boyd asked whether it was desirable that further restrictions should be placed on the sale of hypnotics.—Dr. T. S. CLOUSTON said that the questions in relation to these drugs were: (1) Was there required a sleep producer, (2) or a general sedative, or (3) muscular relaxation? He had found that paraldehyde was most effective and least dangerous; he had known 2 ounces to have been administered by a nurse without harm to the patient. One had to keep in mind whether an instant or a gradual effect was desired. In nearly every case one obtained a better result by combining these drugs than by giving a single one—for example, a dose of sulphonal at 9 P.M. and one of veronal at 10 P.M. allowed a less dose of each to be given and a better effect resulted. He thought that bromide of potassium was neglected as an adjuvant to hypnotics and sedatives; thus 20 grains of bromide with a dose of paraldehyde gave a patient sleep and a quiet day following. He entirely differed from Dr. Boyd, who said that sulphonal was to be avoided. He had found 10 grains of sulphonal and 20 grains of bromide of potassium most useful in the excitement of old age. Veronal was an admirable drug when it agreed, but it often produced giddiness and erythema. A combination of veronal and trional in doses of 5 grains of each gave a better result than either singly—one obtained an absolutely certain effect. If a hypnotic were desired, then paraldehyde or veronal might be given; if a sedative, sulphonal or trional in combination with bromide. Hot milk administered with the drug prevented hæmatoporphyrinuria.—Dr. GEORGE M. ROBERTSON agreed as to the combination of drugs one of which acted promptly while the action of the other was prolonged. He was in the habit of giving 1 drachm of potassium bromide at 7 or 8 P.M., and when the action of this drug began about 10 P.M. a dose of paraldehyde was given when the patient was in bed. He knew a nurse who gave 2 ounces of paraldehyde to each of six patients; next day all were insensible as if under the influence of chloroform, but all recovered except one who was far advanced in phthisis. He said that 10 years ago sulphonal was universally praised by alienists, but owing to the number of deaths which resulted he had not employed this drug for the past nine years, and it was a drug specially dangerous to women; he had known of a death after three doses. Trional had been shown to be one of the most powerful agents in inducing degeneration of nerve cells.—Dr. J. O. AFFLECK said that hypnotics were more universally used now than ever before. Sleeplessness might be the main symptom, and he thought that this condition was less well borne now than previous to the introduction of hypnotics. Change of air or diet might cure the condition of sleeplessness and thus the use of hypnotics might be avoided. He had found a combination of bromides with tincture of hops often of great value in simple insomnia. The same hypnotic might be of use at one time and quite fail at another in the same patient. He had known of one case of the drug habit with paraldehyde. Chloral was valuable in reducing the delirium of advanced typhoid fever (coma vigil), and also in the delirium of pneumonia. He had not experienced untoward effects with trional or sulphonal, but he had seen disquieting results from veronal. All such drugs had to be carefully watched, as some were cumulative and others were depressing.—Dr. W. C. SILLAR said that the question of combination was, perhaps, the most important factor in the discussion. A purgative pill was almost invariably compound, so that small doses of each drug might be employed, and for the same reason a combination of hypnotics gave greater certainty with small doses of each. The great desire was to obtain a rapid effect, and therefore the question of solubility and absorbability had to be considered. On account of these properties alcohol was one of the most useful of hypnotics, and a glass of beer or stout at bed-time might well replace the tincture of hop which had been recommended. If a hypnotic were prescribed along with a diaphoretic probably a much more profound action would be obtained. The chemical constitution of paraldehyde resembled that of an alcohol, and this might account for its useful action as a hypnotic.—Dr. JAMES RITCHIE said that an opiate afforded the best relief for pain, while if the excitement were due to overwork bromide was most satisfactory. If the latter condition was associated with exhaustion, then a stimulant in the form of sal volatile should be added. In the aged or debilitated soup was a good form of stimulant, and in young people a large dose of Mindererus's spirit to dilate the capillaries was efficacious. He had not used sulphonal for many years because of the ataxia which it produced.—Dr. MACGILLIVRAY, Dr. R. A. LUNDIE, and Dr. GEORGE HUNTER took part in the discussion, and Dr. BOYD replied.

Dr. NORMAN WALKER read a paper on the Treatment of Lupus Carcinoma. He spoke of the increased frequency of this disease within recent years and of the gravity of the prognosis in such cases. He narrated the history of several cases treated by X rays and excision some years ago, with the result that many of them died. He was so disappointed with this form of treatment that during the past few years he had been in the habit of scraping the surface thoroughly; and having waited until all bleeding had ceased, using it might be, adrenalin, he then cauterised the raw surface with arsenious acid, caustic potash, or chromic acid. If the lupus carcinoma were extensive the patient might require to be anæsthetised, otherwise a local anæsthetic was alone

required. In every case of lupus in old people there was grave risk of it becoming carcinomatous. Formerly Dr. Walker advocated excision, but not now, as he thought that the disease, being very superficial and having a layer of dense connective tissue beneath it, scraping was the better plan. He had had uniformly bad results with excision, but uniformly good results with scraping, and the scar was as good as could be expected.—Dr. W. ALLAN JAMIESON said that cancer was apt to develop in cases of extensive lupus, and especially if it were on exposed parts. Exposure to the weather might induce cancer as well as X rays. Tension of the part had a good deal to do with the production of carcinoma lupus as the opening and shutting of the jaws. X rays were a frequent cause of this degeneration because they produced telangiectases, and by the irritation of these cancer was induced. Long ago Mr. (now Sir) Jonathan Hutchinson had said that excision was of no use in this disease. By the use of arsenious or chromic acid tissue was not removed, and this did not increase tension and was a great improvement in the treatment. In one situation of lupus, that of the nose, X rays had given brilliant results and scraping had here been of no use.—Dr. R. CRANSTON LOW also spoke.

Dr. WILLIAM RUSSELL read a communication on the Cammidge Reaction in Abdominal Disease. In view of the importance of accurate differential diagnosis in diseases of the abdomen any new aid must be carefully examined. With this object Dr. Russell for the second time took up the examination of the urine by Cammidge's method. The claim of the author of this test was that, with certain reservations, the reaction was indicative of the existence of pancreatitis—a disease common and serious, it was alleged, but which hitherto had escaped notice, but was now recognised as such for the first time by this product in the urine. The Cammidge reaction claimed to be a pancreatic reaction, and if this were not the claim then the performance of the test could at best be merely the demonstration of a chemical vagary in the individual, while if the claim were abandoned and at the same time the value of the reaction be asserted, they got into a region somewhat outside either the pale of scientific medicine or of logical thinking. The reaction could not both be and not be a sign of pancreatitis. The liver was a great excretory gland through its biliary function, it was indirectly the same in virtue of the chemical synthesis effected by its cells in the formation of urea, and it protected the body from the action of various toxins; through its glycogenic function it stored up energy. The influence of the bile in digestion was relatively insignificant. The pancreas, on the other hand, was a great secretory gland and performed no such functions as the liver; it was comparable to the salivary glands; its disturbances affected the value of its secretion. Injury to the liver by way of the blood or lymph was common. In the pancreas acute necrotic and hæmorrhagic inflammation was known as a highly mortal malady, but it had not been shown that these conditions arose from direct infection, while the cirrhosis of this organ had no clinical significance apart from the production of diabetes in some instances. Any absorption from the gland must be from its own secretion or of an altered enzyme, and the latter were protein bodies, not carbohydrate bodies, and presumably could not therefore be the source of the substance in question. The clinical pathology of the two glands was thus fundamentally different, and care had to be taken that clinical contentions regarding the pancreas were not based upon an imaginary pathology of the organ. In the present investigation the urine of patients suffering from abdominal symptoms or definite abdominal lesions was examined with the object of ascertaining whether any assistance was to be obtained from the presence or absence of the reaction in making a differential diagnosis. Tables were given of 78 types of abdominal disease. One case of necrotic pancreatitis gave a prompt and marked reaction. Another positive reaction was obtained from a man with indefinite gastric symptoms with toxic asthenia. The occurrence of melæna, however, in this case argued against a diagnosis of pancreatitis; at the necropsy a sloughing malignant growth was found in the stomach with secondary growths and necrotic areas in the liver, while the pancreas seemed normal. If disturbance of liver function could give a marked Cammidge reaction, there ceased to be any reasonableness in associating the urinary finding with pancreatic disease. Three cases of cirrhotic liver gave positive reactions. The ascitic fluid in two of these gave the reaction; while two cases of catarrhal jaundice were positive, and in seven cases of gallstone colic six observations were positive and three negative. Of 55 cases of gastro-intestinal derangement or of actual abdominal lesion the Cammidge reaction was negative in 26, while 29 cases gave a positive reaction. In spite of Dr. Russell's earnest attempt to find some value in the test, he entirely failed to obtain any indication from it of the existence of pancreatic inflammation or even any sure light and guidance as to the state of pancreatic secretion or of pancreatic digestion. Five check cases were taken with no abdominal symptoms; one was a case of arterio-sclerosis with normal pancreas, which gave a negative reaction once and on three occasions a positive reaction; a patient suffering from subacute rheumatism gave a positive reaction on three occasions. Seven observations made on three of the staff gave six positive reactions and one negative. From these results it was seen that a positive Cammidge reaction might be obtained from the urine of persons in good health, as also from persons suffering from a great variety of abdominal disorders or other diseased conditions; it might be present when the necropsy showed that the pancreas was apparently healthy. These definitely excluded pancreatitis as the cause of the Cammidge reaction. That the reaction was a reliable guide to the condition of the pancreas had not been borne out by Dr. Russell's observations, and indeed they seemed to negative such a contention. Even putting pancreatitis out of account, it might still be contended that the substance found in the urine was absorbed from the pancreas; but the pancreatic enzymes are proteid substances, while the substance in question is a carbohydrate. But even were such absorption the source of the substance they would require to recognise that the absorption took place in so many different conditions, was so variable in amount, and so apparently erratic in the times of its appearance that its presence as an aid to abdominal diagnosis was entirely negligible, and if depended on might be wholly misleading. The substance was probably a pentose, and its composition did not *a priori* suggest the pancreas as its source, but led rather to the consideration of intestinal processes and of the hepatic functions. In these regions it seemed to Dr. Russell that they were on sounder ground when seeking a source for this new urinary constituent. German, French, and American observers have noted that the reaction was obtained in diseases other than pancreatitis, and others have found it absent in pronounced cases of that disease. Cammidge's reaction was one of a number of urine reactions which might accompany alimentary error; to claim for it any higher position in diagnosis or prognosis was not warranted, and practically tested, as Dr. Russell had done, it signally failed.—Dr. D. CHALMERS WATSON pointed out that the interesting results which Dr. Russell had recorded were practically identical with those which he had described for a much larger series of cases two or three years ago. He differed, however, from Dr. Russell in the interpretation of the results, as he was satisfied that the pancreatic reaction test was of great value in diagnosis and a useful guide in treatment. Dr. Russell had approached this test from the standpoint of its being *pathognomonic of pancreatitis*. He (Dr. Watson) doubted if anyone definitely made that claim. In any case he did not, but he regarded the presence of a marked pancreatic reaction as an indication of a functional derangement of the pancreas of an important character, and one which was in the main amenable to dietetic treatment. Therein lay the special value of the test. Attention was drawn to the existence of clinical cases, variously diagnosed as indigestion, gout, and the like, which were associated with a marked pancreatic reaction in the urine, where the symptoms improved or disappeared coincidently with the disappearance of the pancreatic reaction in the urine under the influence of appropriate diet. The test had, in Dr. Watson's view, to be looked at from a much wider standpoint than had been indicated in Dr. Russell's interesting paper.—Dr. RUSSELL replied.

EDINBURGH OBSTETRICAL SOCIETY.

Treatment of Vomiting following Chloroform Anæsthesia.—Practical Points in the Life-history of Uterine Fibromyomata.—Pelvic Abscess.

A MEETING of this society was held on June 8th, Dr. F. W. N. HAULTAIN, the President, being in the chair.

Dr. J. W. KEAY read a short note on the Treatment of

Vomiting following Chloroform Anæsthesia, including the use of adrenalin. Slight sickness after chloroform anæsthesia is very common and leads to no actual danger; occasionally, however, by its persistence the patient's condition is rendered grave, and effectual means are eagerly sought for. In slight cases in nervous patients an enema of bromide and chloral will suffice to stop the sickness. In ordinary cases no foodstuff should be given by the mouth. Thirst can be assuaged by saline enemata or by rinsing out the mouth with aerated soda-water or hot or cold lemon-water. Where the anæsthesia has been prolonged and probably some chloroform been swallowed with the saliva the stomach is much relieved by copious draughts of hot water with bicarbonate of sodium, along with counter-irritation to the epigastrium. The serious cases of chloroform sickness are prone to occur after major gynæcological operations attended with some degree of shock. The disturbing condition of distension of the intestines is present and may be associated with intestinal paresis. In such cases the vomit is often not only bile-stained, but is coffee-ground from the admixture of blood. Sometimes the vomiting does not begin in these cases till from 12 to 24 hours after the operation. But with the persistence of the vomiting the pulse becomes rapid, and the case may end fatally in three or four days. Besides giving saline draughts by the mouth, saline enemata, and a purge, Dr. Keay recommends the use of solution of adrenalin chloride (1 in 1000) in 5-minim doses, if necessary every two hours. He believes it acts by blanching the vessels of the stomach and so preventing the bleeding which produces the black vomit. It also stimulates the peristalsis of the stomach and intestine, relieving the distension, and acts as a stimulant to the heart.—Dr. J. HAIG FERGUSON, Dr. J. LAMOND LACKIE, and the PRESIDENT discussed the paper and Dr. KEAY replied.

The PRESIDENT read a paper on Some Practical Points in the Life-history of Uterine Fibromyomata. The etiology of uterine fibromyomata remains a profound mystery; whether they are developmental or acquired has yet to be proved. They practically never manifest themselves before puberty and seldom commence of themselves to give evidence of their presence after the menopause. From this it would suggest itself that there may be much in ovarian influence, and the frequency of cystic ovarian conditions complicating their presence is undoubted. They seem to occur with practically equal frequency in married and single, but a considerable amount of controversy still exists as regards their relation to pregnancy. From over 400 cases where the President had performed hysterectomy or myomectomy there were 39 per cent. single and 61 per cent. married. Of the married, 42 per cent. were childless; 40 per cent. of those who had children had only one child, while the average number was 2·6. The average age of the last child before the operation was eight years (no widows were included). One can infer, therefore, that the mere occurrence of marriage has little or nothing to do with their presence, but so far as child-bearing is concerned, fertility is much impaired. These tumours have a distinctly sterilising effect; and probably pregnancy has a distinct stimulating effect upon their growth. During pregnancy they increase in size and remain larger after its completion. From this enlargement they commence to develop symptoms, one of the chief being sterility, either absolute or indirect, due to the frequency of abortions. Fibroids and pregnancy are fraught with much danger; women with fibroids sufficiently prominent to direct attention to their presence are safer single, and if married, safer sterile. One of the main characteristics of fibromyomata is the frequency with which they undergo degenerative change, 34 per cent. of his cases showing this occurrence. One would expect this from their tendency to develop an excess of fibrous tissue and from their having poor and difficult circulation. Cystic formations following degenerations are common. Malignant or sarcomatous change is extremely rare; it was only met with twice in his 425 cases. This is not in accord with other observers. The disparity is probably due to the fact that microscopic evidence alone is taken as decisive; whereas many cases, which clinically cannot be said to be malignant, have numerous embryonic connective-tissue cells which simulate sarcomatous tissue. Round the bed of the tumour veins are numerous and phlebitis is not uncommon, spreading from them to the lower limbs; he has met 14 cases of an aggravated form, in 9 of which both legs were affected. These lead to prolonged invalidism for months, but he (the President) now operates at once, and though there may be a short temporary increase of symptoms yet the condition rapidly diminishes. Fibromyomata delay the menopause, and it is at this time that they are specially liable to develop degenerative changes. Sometimes the delay of the menopause is extreme. One of his patients was 61 years, and yet with no cessation of menses, and other five were over 56 years when operated on. In 13 cases out of 425 he operated after the menopause for various conditions, as a calcified tumour causing pressure symptoms, sarcoma of tumour or uterine mucosa, twisted uterus, fibrocystic degeneration causing increase of growth, &c. After the menopause the tendency is towards atrophy and quiescence of the tumour. Post-mortem statistics show that 1 woman in 5 has fibroid nodules in the uterus, but in a very small proportion do they grow to any dimensions or assume characters of a morbid type giving rise to symptoms. They may be considered as harmless growths which only demand attention when they give rise to symptoms. Some consider that they should be removed whenever recognised in all circumstances. The speaker is entirely at variance with this view, as only a small proportion of fibroids give rise to symptoms and there is plenty of time to arrange to treat them if required. Malignancy is an exception and sudden dangers are very rare. But when symptoms develop, he strongly supports their removal. To wait on the menopause is too indefinite and even then does not ensure safety. The risk of operation is now so small that it is folly to undergo years of invalidism for a problematical healthy old age. A 2 per cent. mortality risk is worth running when benefit is to be attained, but not on a chance of avoiding probable trouble.—Dr. J. W. BALLANTYNE, Dr. HAIG FERGUSON, Dr. W. FORDYCE, Dr. E. W. SCOTT CARMICHAEL, and Dr. LAMOND LACKIE discussed the paper, and the PRESIDENT replied.

Dr. LAMOND LACKIE read notes on two unusual cases of Pelvic Abscess. Both were primarily cases of right-sided puerperal parametritis which went on to pus formation. In the first, the pus burrowed backwards along the posterior part of the iliac fossa, passed through the lumbar aponeurosis, and then turning forward appeared in the triangle of Petit. In the second, the area of abscess formation was surprisingly limited, for the inflammatory process had been going on for months. The patient suffered very acute pain in the region of the greater sciatic notch. No fluctuation could be made out per vaginam, but there was distinct œdema of the skin on the buttock. On cutting down towards the notch a small quantity of pus escaped, and on passing forceps through the sciatic notch about half an ounce of pus welled out. Both patients rapidly recovered after evacuation of the pus.—Dr. FORDYCE, Dr. SCOTT CARMICHAEL, and the PRESIDENT made remarks on the subject.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Goldscheider has been appointed to the charge of the Medical Polyclinic to succeed Professor Senator, who is retiring.—*Breslau:* Dr. R. Scheller, *privat-docent* of Hygiene, has been granted the title of Professor.—*Freiburg:* Dr. Otto Pankow, *privat-docent* of Midwifery and Gynæcology, Dr. Oswald Bumke, *privat-docent* of Psychiatry, Dr. Edgar Gierke, *privat-docent* of Pathology and Anatomy, and Dr. Hermann Schridde, *privat-docent* of General Pathology and Pathological Anatomy, have been granted the title of Extraordinary Professor.—*Kiel:* Dr. Louis Michaud of Berne has been recognised as *privat-docent* of Medicine.—*Lille:* Dr. Oui has been appointed to the chair of Clinical Midwifery in succession to Dr. Gaulard.—*Lyons:* Dr. Roque has been appointed to the chair of Clinical Medicine in succession to Dr. R. Lépine.—*Marseilles:* Dr. Guérin-Valmale of Montpellier has been appointed to the chair of Clinical Midwifery in succession to the late Dr. Queirel.—*St. Petersburg Military Medical Academy:* Dr. A. P. Tavitski has been appointed Professor of Medicine and Dr. G. P. Féderoff Professor of Surgery. Dr. P. S. Ikonnikoff has been recognised as *privat-docent* of Surgery.—*Stockholm:* Dr. J. A. Dalén, Professor in the Lund Faculty of Medicine, has been appointed to the chair of Ophthalmology in succession to the late Professor E. J. Widmark.—*Strasburg:* Dr. von Lichtenberg has been recognised as *privat-docent* of Surgery.—*Tomsk:* Dr. A. N. Bogoratz has been recognised as *privat-docent* in Surgery.

Reviews and Notices of Books.

Royal Commission on the Poor-laws and Relief of Distress. A course of Nine Lectures delivered on the Report of the above-named Commission in Sheffield during the Winter of 1909–1910. With a Preface by Dr. H. SCURFIELD, Medical Officer of Health for Sheffield, one of the Honorary Secretaries to the Committee which promoted the course. Sheffield: Sir W. C. Leng and Co. (*Sheffield Telegraph*), Limited. 1910. Pp. 56. Price 4*d*.

THE literature of Poor-law reform is assuming great dimensions, but the pamphlet in which the *Sheffield Telegraph* has reissued nine lectures on the subject delivered in that town contains useful contributions to a discussion which seems likely to be prolonged considerably before any statutory innovation of importance takes place. The citizens of Sheffield have had the advantage of hearing from their own lips the views of two of the Minority, and if Mrs. Sidney Webb and the Dean of Norwich have not added greatly to that which was already known of their opinions and their arguments, they must have enabled those who listened to them to grasp the principles upon which the Minority recommendations are based, as a prelude to judging of the practicability of the policy to which its champions declare adherence. Mrs. Sidney Webb accordingly figures in the reprint before us as the whole-hearted champion of a system having for its proposed object the prevention of destitution, and she urges all to seek this Utopian goal, with more success than she meets the arguments of those who decline to efface from their minds their knowledge and experience of Poor-law relief as now administered, of its difficulties and its successes. Dr. Russell Wakefield dwells upon the question of the treatment of the able-bodied as raised by the two Reports, the point of divergence at which, we believe, he finally determined to sever himself from the Majority, headed by Lord George Hamilton, and to append his signature to the Report of the Minority.

Other Commissioners, from the side of the Majority, who have lectured at Sheffield are the Rev. L. R. Phelps and Mr. F. H. Bentham, and with these are associated in the same course Dr. J. C. McVail and Miss Marion Phillips, members of the medical profession employed as investigators on behalf of the Commission, Mr. R. H. Tawney, also so employed, and Mr. Bernard Bosanquet, whose wife was a Commissioner. The paper read by Mr. H. J. Manton, who was not connected with the Commission, represents the case of the guardians, a body much abused and threatened with speedy extinction, but like other threatened institutions possibly destined to enjoy prolonged, if reformed, existence.

If we say that Mr. Manton's contribution to the volume is the most valuable that it contains, we do so from no desire to disparage the others, particularly those which follow it, but because it puts the side of which least has been heard in a many-sided discussion with clearness and force. Mr. Manton has had considerable practical experience of Poor-law work. He has been chairman of the Birmingham board of guardians and vice-president of the Poor-law Unions' Association, he avows himself a member of the progressive school of guardians, and he combats alike the views of Mrs. Sidney Webb on guardians, the proposals of herself and her colleagues for their abolition, and the Majority's advocacy of selected committees. Mr. Manton, in fact, takes his stand by the *ad hoc* elective authority, and he defends it with considerable force and cogency, both as to what it has done in the past and as to what it should achieve in the future, if given a fair field for its efforts. The soundness of many of his arguments comes near to establishing his case; but Mr. Bentham, ex-president of the Bradford board of guardians and a member of the Commission, follows him and brings the matter back to that perplexing point at which reasonable argument is found weighed in the balance against undeniable fact. The direct election by the ratepayer of his representatives, who shall be the best qualified of those offering themselves for the purpose, has all in its favour which is independent of past experience. In fact, however, it seems to be beyond dispute that very many who might do good service, perhaps the best, in administering public assistance do not, and will not, face public election, and two-thirds of the electorate care so little that they never vote. Mr. Bentham questions in these circumstances "whether it is really a denial of the democratic principle to suggest that a popularly elected body should be allowed to select its best citizens to administer a particular branch of public service," and as long as the best citizens will not brave the disagreeable features of an election, and are liable if they do so to be beaten by those less worthy, there is much in favour of some such form of selection as the Majority Report has suggested. The questions raised by Mrs. Sidney Webb, the reply of Mr. Manton, and the further comment furnished by Mr. Bentham in themselves render the Sheffield lectures worth reading.

For medical men Dr. McVail's contribution to the series will be found to be a readable epitome of his opinions and suggestions already made public in an ample and more exhaustive form, and the points which he raises should not only be considered by members of the medical profession whether engaged in Poor-law medical work or independent of it, but also by the lay public, in whose interest he puts them forward. Dr. McVail, among other matters, reiterates in particular his desire that in the carrying out of any scheme of extended medical provident institutions "every doctor on the institution list should make a periodical, though not necessarily a frequent, inspection of all members under his charge." This may be a counsel of perfection for the realisation of which we shall have to wait long, but its ventilation among those likely to be affected by it as members of such institutions, and much else that Dr. McVail has to tell them, should impress upon them the advisability of early attention to ailments which may appear to them to be trifling. He devotes a passage in the earlier portion of his paper to "delay in seeking medical advice," and the effect of such delay through prolonged illness, permanent incapacity, and death of the bread-winner, in producing pauperism.

We are glad to note that Dr. Harold Scurfield in his brief preface records that the lectures excited a great deal of interest in Sheffield. This subject, of such momentous interest to all classes of the community, is unfortunately one which cannot adequately be considered without study of its details, and, as Dr. Scurfield explains, "few persons will wade through the bulky volumes of the Commissioners' report, and consequently many remain in ignorance of the far-reaching nature of the issues dealt with."

Die Krankheiten der Nase und des Nasenrachens, mit besonderer Berücksichtigung der rhinologischen Prepädeutik. (*Diseases of the Nose and Naso-pharynx, with particular reference to Rhinological Method.*) By Dr. CARL ZARNIKO. Third edition. With 166 illustrations. Berlin: S. Karger. 1910. Price, paper, 18 marks; bound, 19.60 marks.

To call Zarniko's well-known work upon the nose and naso-pharynx unique would scarcely amount to an exaggeration, for we know of no other in which is contained in so complete and all-embracing a fashion the kind of material that is herein presented. In many respects, no doubt—in the arrangement and subject-matter of many of the chapters, for example—the book is in no way superior to half a dozen other standard works on rhinology; but in respect of its combination of comprehensiveness, lucidity, and balance

Zarniko's treatise stands first, even though it will be our duty to point out several gaps.

It is with what is termed in the original the *Propädeutik* (a word that can best be rendered in English by the old-fashioned *Institutes*) of rhinology that the author chiefly concerns himself—with the anatomy, that is to say, physiology, pathology, and methods of diagnosis and treatment. And although this entails a handling of the subject in the manner of the pure scientist, he nevertheless so vitalises the dry facts with the practical spirit of the clinician that there is an entire absence from his work of the musty atmosphere of the museum and the bone-room. Each item falls into place according to its clinical and not according to its academic importance.

In the section devoted to physiology the author has gathered together nearly all the theories that have been produced to explain the functions of the various structures in the nose and throat, and we are filled with admiration at the fair and unbiassed hearing he grants to each in its turn. The physiology of olfaction is particularly fully described. We confess we should have liked to hear the author's views upon the researches of A. Most and Z. von Lénárt on the functions of the tonsils, which seem to show that they are lymphatic glands to which the nasal lymphatic circulation tends, a theory which certainly clears up some, at least, of the mystery surrounding the physiology of these bodies. The author's presentation of the different opinions that are held regarding the functions of the nasal accessory sinuses also includes almost everything that has been said and written on the subject. At the same time we miss the theory that the sinuses are merely passive cavities, whose only function, if we may call it a function, is to render the facial skeleton at once extensive, protective, and light.

As in the other sections, so in those dealing with pathology and treatment, the predominant features of the work are exhaustiveness, moderation, and sanity, although we may here and there come across a pronouncement which engenders some doubt in the reader's mind. There are not many specialists, we imagine, who would place so much reliance on transillumination of the frontal sinus as the author does. And, in like manner, we hesitate to accept the opinion that the use of alypin as a local anæsthetic is altogether free from danger. The examination of the sinuses by means of the X rays is clearly and fully described, but the value of this portion of the work would be increased if it were illustrated with actual skiagrams. The illustrations in general are fairly good and one or two of them are excellent. Fig. 6, however, does not, in our opinion, repay the skill and ingenuity which have obviously been expended upon its construction. We heartily agree with the author in emphasising the perils with which nasal obstruction and catarrh threaten newborn infants, and we commend his remarks upon this subject to the consideration of other rhinologists, many of whom, to judge by their silence, do not seem to appreciate its importance.

We observe that the author is silent regarding certain English views on the pathogenesis of atrophic rhinitis, and we are also constrained to note that the influence of some of the classical controversies on rhinology in our country has not yet reached him. Simple nasal polypus, for example, is classified with neoplasms under the heading of fibroma. While this arrangement is not entirely indefensible we may be pardoned if we say that it might have been modified had the author been able to accept the opinions which have resulted from the developments of rhinological pathology in England. But the fact is that Dr. Zarniko has not felt the need of becoming acquainted with all the minutiæ of English and American investigations, so that the omissions we have just mentioned need not fill us with amazement. We have no doubt, however, that in future editions these omissions, dependent sometimes upon the dilatoriness of his English-speaking *confrères*, will be rectified.

These, to be sure, are but trivial faults. Otherwise, no book could be more thorough, more accurate, and, above all, more readable. The author's style is terse and pregnant, and presents a refreshing contrast to the vast and ponderous utterance in which Teutonic science has been known to veil itself. There is a good and trustworthy index, another novel feature in a foreign work, in which we have discovered only one slip (*Gaumenmandl, Hyperplasie*, 635, instead of 608).

We recommend every German-reading rhinologist to become possessed of this useful work, and we venture to express our conviction that its translation into English would meet with a ready welcome both in Great Britain and in America.

Le Diabète Sucré. (Diabetes Mellitus.) Par R. LÉPINE, Professeur de Clinique Médicale à l'Université de Lyon, Correspondant de l'Institut, Associé de l'Académie de Médecine, &c. Paris: Felix Alcan. 1909. Pp. 704. Price Fr. 16.

THIS important work contains a very careful study of diabetes mellitus and the problems involved in its pathogenesis, based upon 20 years' experimental, pathological, and clinical work by Professor Lépine and his pupils, among whom he mentions M. Porteret, M. Barral, M. Métroz, M. Martz, and especially M. Boulud. It opens with an interesting history of previous work upon the disease, in which due tribute is paid to the work of Willis, Dobson, F. Homes, and Rollo in this country. Dobson in 1775 appears to have been the first actually to separate sugar from the urine, and to maintain that it was not formed in the kidneys. The account given of the researches of Claude Bernard is lucid, interesting, and stimulating, being rendered more vivid by numerous extracts from the original papers. The extraordinary originality and fertility in resource of this brilliant investigator demonstrated the quantity of sugar in the blood, the presence of glycogen in the liver and its conversion into sugar, and proved that diabetes is a perversion of the normal processes of carbohydrate metabolism. Professor Lépine shows that Bernard failed to recognise the diminution of glycolysis in diabetes, and points out that in justice we ought not to forget the work of his opponents, notably Figuier, Pavy, and Schiff, which has been too much overshadowed by his glory. He proceeds to trace out the history of the discovery of the acetone bodies, and of the relation of the pancreas to the disease, and summarises the general history of diabetes down to the year 1892. Advances made since that time are regarded as contemporary and are included in the general text.

The first chapter deals with the sugar of normal blood, concerning which, both as regards its nature and its quantity, so much controversy has raged ever since 1847, the year in which Bernard commenced his researches. Its percentage, its distribution in the blood, and the question as to whether it exists free or in combination are all dealt with, and experiments in support of the statements made are quoted. Professor Lépine finds that the sugar of the blood as ordinarily estimated represents only a part of that actually present, since a considerable proportion of the sugar exists in a state of combination, from which it can be disengaged in response to the needs of the tissues. This sugar he refers to as "virtual sugar" (*sucre virtuel*). The processes of glycogenesis and glycolysis within the body are discussed at considerable length, and the conditions, favourable or otherwise, to their occurrence are categorically considered by Professor Lépine. The terms glycogenesis and glycolysis are

used in a restricted sense to indicate the production and destruction of sugar respectively within the body, and in order to avoid confusion the term zoamylin is adopted for the substance usually known as glycogen. This latter term has, however, been so long established that it may be doubted whether this terminology will be generally adopted. The general characters of glycolysis are admirably summarised at the end of a section devoted to its consideration. The use of sugar in the body to supply energy and heat is effected by means of glycolytic ferments or cytases which differ in different organs. The actual process of glycolysis is also multiform and is activated by the internal secretions of various organs, notably of the pancreas. In diabetes this process is diminished.

The conditions under which sugar appears in the urine are described in great detail, including the experimental forms, such as those due to adrenalin, to phloridzin, and to extirpation of the pancreas. The light which they throw upon the utilisation of sugar within the economy and of the disturbance of these processes in disease justifies the author's elaborate treatment. Professor Lépine uses the generic term glycuria instead of glycosuria to indicate the occurrence of any sugar in the urine, the latter term being restricted to the presence of glucose. Rather more than half of the book is devoted to the study of the physiological and experimental considerations which we have briefly enumerated, the remainder being devoted to a study of the phenomena of diabetes as met within man.

Professor Lépine maintains that under the generic term of diabetes mellitus a number of different pathological states are included. These he endeavours to separate in so far as our present knowledge enables this to be done. He is careful to point out, however, that a classification according to the organ chiefly involved is not a satisfactory one, since it offers no explanation of the actual pathogenesis of the condition and may group together forms which are fundamentally different. He suggests a provisional separation into two groups—first, those which increase the production of carbohydrates within the economy and which oppose their deposit in the form of reserve carbohydrates or fats, and secondly, those which diminish the destruction of sugar. Clinically, the task of discovering the particular form is often difficult, and the problem may not be completely solved even at necropsy.

The description given by Professor Lépine of the symptomatology of diabetes leaves nothing to be desired. It is clearly arranged, and affords an exhaustive study of the numerous symptoms and complications. The morbid conditions found in the various organs in diabetes are also described, and their significance in regard to the symptomatology and pathology is critically considered. An interesting chapter entitled "Nutrition in Diabetics" contains a study of the capacity of patients to utilise the various proximate principles of food. The conditions of acetonæmia and coma are dealt with fully and the theories put forward in explanation are discussed. Diagnosis and prognosis are systematically treated, and the influence of various symptoms upon prognosis receives due consideration. In regard to treatment, regimen and diet are fully discussed and the effects of various medicaments are reviewed. The manner of treating complications is also thoroughly worked out.

Professor Lépine's book forms an authoritative work of reference on the subject of diabetes. It contains very numerous references to the work of other authorities, and also the records of the experiments of Professor Lépine and his pupils.

Allen's Commercial Organic Analysis. Vol. II. Fourth edition. Entirely rewritten. Edited by HENRY LEFFMANN, M.A., M.D., and W. A. DAVIS, B.Sc., A.C.G.I. London: J. and A. Churchill. 1910. Pp. 520. Price 21*s.* net.

THIS volume will certainly be one of the most valuable of the set, since it deals with the important series of compounds, the fixed oils, fats and waxes, butter-fat, soap, glycerine, and so on. The choice of writer has again fallen upon well-known authorities upon each subject, Mr. C. Ainsworth Mitchell, B.A., F.I.C., contributing the articles on Fixed Oils, Fats and Waxes, and Lard; Mr. Leonard Archbutt, F.I.C., the article on Special Characters and Methods; Mr. Cecil Revis and Mr. E. R. Bolton on Butter Fat; Mr. C. A. Klein the article on Linseed Oil; Mr. W. Robertson the article on Higher Fatty Acids; Dr. H. Leffmann the article on Soap; Mr. W. A. Davis the article on Glycerol; Mr. John Addyman Gardner the article on Cholesterols; and Mr. Augustus H. Gill the article on Wool Fat, Cloth Oils. The fact that these gentlemen are authorities on their subjects appears from the copious references to their original researches in the text and in the foot-notes. Moreover, the records of scientific work quoted are of recent date. The reader will be impressed also with the amount of work contributed upon the chemistry and analysis of fats and their allies by Mr. Otto Hehner, with whom Mr. Ainsworth Mitchell often appears as collaborator, and by Mr. Julius Lewkowitsch. It is quite obvious that a large section of the subject-matter is of concern to our profession, because there are analytical methods set out which are directed to the detection of adulterants and impurities in certain substances used in medicine, as, for example, castor-oil, cod-liver oil, almond oil (fixed), glycerine, wool-fat, lanolin, and so forth, and it follows that the work is not restricted to giving a series of analytical methods to be used merely as assay methods for commercial requirements. The writers have included also methods of examination which by their application may bring fraud and objectionable practices to light. In addition, therefore, to the analyst engaged upon commercial work, the public analyst who is engaged in that important department of public health administration, the maintenance of a pure and uncontaminated food-supply, will find trustworthy counsel of particular concern to himself in the pages of this work.

The series has opened thoroughly well, and if the succeeding volumes maintain the thorough character of Vols. I. and II., the science of analytical chemistry will receive a decidedly rich addition to its literature.

LIBRARY TABLE.

Emergency Surgery for the General Practitioner. By JOHN W. SLUSS, A.M., M.D., Professor of Anatomy, Indiana University School of Medicine; formerly Professor of Anatomy and Clinical Surgery, Medical College of Indiana; Surgeon to the Indianapolis City Hospital, &c. Second edition, revised and enlarged. With 605 illustrations, some of which are printed in colours. London: Rebman, Limited. 1910. Pp. 748. Price 15*s.* net.—In times of stress the surgeon has little opportunity of consulting works of reference. If he be much accustomed to operative work, as are those who specially devote themselves to this class of practice, his memory will serve to tell him what to do. But if he be in general practice the lack of opportunity of dealing frequently with important and urgent conditions will render it very difficult for him to be sure that he is choosing the best methods of treatment. He has usually no time to search widely in his library for the information which he so earnestly requires. Many of the works on surgery may not present the information, even if they contain it,

in a form in which he can readily assimilate it, and therefore it should prove very useful for a general practitioner to have within reach a work which contains in one volume all, or nearly all, that he will immediately require in an emergency. We consider this book to be well calculated to fulfil the objects with which it has been written. The author makes no pretence of originality. The substance of his work is founded upon the received text-books; he has ranged widely in making his choice, and the result is good. It is always difficult in drawing up a guide for the performance of operations by those who are not much accustomed to practise operative surgery to know exactly where to draw the line between operations which may reasonably be undertaken by the general practitioner and those which should, whenever possible, be left to the operating surgeon. Circumstances alter cases; in a thickly inhabited country and in towns the general practitioner will restrict his operative work according to his own bent and his patients' wishes, for it will always be easy for him to invoke the aid of someone of special experience in each department of surgery. But in remote parts of the country, and especially in sparsely inhabited lands, the choice will lie between performance of the operation by the general practitioner and no operation at all. Therefore, it is justifiable, in a text-book like the present, to include some operations which can hardly be looked upon as suitable in ordinary circumstances for performance by those engaged in general practice because of the familiarity with an unusual technique that is required. The illustrations in the book deserve a few words. They are very numerous; for the most part they have been borrowed from other works and they have been selected judiciously; but though the author has been careful to assign the source from which he has taken the illustrations, yet that source has itself presented sometimes as original an illustration that was only borrowed. Thus on p. 266 we find an illustration of dislocation of the jaw, and after the title we find (Moullin), indicating the name of the author of the book from which it has been taken, but this illustration originally appeared in Sir William Fergusson's Surgery. Similarly we find modern origins attributed to four pictures showing the attitude assumed in the dislocations of the hip, which pictures originally appeared in Sir Astley Cooper's well-known work. The few original illustrations have been taken for the most part from photographs, and answer their purpose well.

Visiting Nursing in the United States. By YSSABELLA WATERS. New York: Charities Publication Committee. 1909. Pp. 367. Price $1.25.—The bulk of this volume is sufficiently described by the subtitle on the title-page, "A Directory of the Organisations Employing Trained Visiting Nurses, with Chapters on the Principles, Organisation, and Methods of Administration of such Work." The book is issued in the fiftieth year of anniversary of the establishment of the first systematic scheme of district nursing by the late Mr. William Rathbone, M.P., of Liverpool. The history of the evolution of district nursing forms one of the most interesting chapters in the sympathetic and careful memoir of William Rathbone, written by his daughter six years ago. The movement was originated within the Society of Friends, and Mr. John Cropper, the Quaker father-in-law of Margaret Macaulay, was Rathbone's chief coadjutor in the work. In the United States the system of district nursing did not attain any influence till 1877, and was first begun by missionary efforts in New York. A perusal of the directory portion of this volume shows the large development which the organisations have attained. If the inception of district nursing was British, there is no question that in America there is a completeness of organisation in this important social machinery from which we might derive many valuable hints. Miss Waters's volume will be very useful to members of committees and superintendents of home nursing work. The information is carefully arranged and simply compiled, the introductory chapters are admirably written, and the book is free from the sentimentality which often disfigures such works.

Dental Medicine: A Manual of Dental Materia Medica and Therapeutics. By FERDINAND J. S. GORGAS. Eighth edition. Manchester: John K. King. Pp. 627.—The present edition of this book should form a most useful addition to the library of the dental practitioner. The description of the various drugs is excellent, and to each the author adds a list of dental formula. About 40 pages of the book are devoted to the diagnosis of mouth affections, and although the information given is in many places useful, it is at the same time occasionally open to criticism. For example, modern opinion is hardly in agreement with the view that dental caries is "caused directly by micro-organisms which attach themselves and grow in contact with the surface of the tooth, being protected by a gelatinous film, and forming an acid which acts upon the tooth tissue, and thus affords access to the micro-organisms." In dealing with the important question of hæmorrhage after extraction of the teeth, there is no mention of that most useful drug, calcium lactate. The information, too, on the treatment of pain following tooth extraction would have been more useful if it had been a little fuller. By these criticisms, however, we do not wish to detract from the useful character of the book.

The Pharmacopœias of the London Hospitals. By PETER SQUIRE. Eighth edition. Revised by PETER WYATT SQUIRE. London: J. and A. Churchill. 1910. Pp. 496. Price 5*s*.—There is no question of the practical value of a book which presents an exhaustive comparison of the Pharmacopœias of the London Hospitals. It is obvious that in such institutions the formulæ are selected for exalted reasons and the judges represent necessarily the leading authorities on therapeutic and pharmacological questions. The seventh edition of this work was published in 1900, since when, it is important to note, no less than 26 of the London hospitals have produced new editions of their Pharmacopœias. The alterations thus involved have, of course, rendered the old editions out of date, though unchanged in many regards. The popularity which the work enjoyed ten years ago called for a fresh edition in which the indicated revisions should be made. The present issue, therefore, has practically been rewritten, and to-day both prescriber and dispenser may consult its pages with profit and interest, remembering that the formulæ contained represent, by studied selections and combinations of drugs, the views of a great tribunal on treatment, brought carefully up to date. The important question of nutrition in disease is not overlooked, and instructive comparisons are made between various peptonised foods, nutrient enemata, and so forth.

Chats on Astronomy. By H. P. HOLLIS, President of the British Astronomical Association. London: T. Werner Laurie. Pp. 226. Price 3*s*. 6*d*. net.—In that interesting work, the second book of Esdras, it is recorded that the angel asked Esdras three questions concerning the wind and the fire and the day "wherethrough thou hast passed"; and when Esdras expressed himself as being unable to answer, the angel replied, "Thine own things that are grown up with thee canst thou not know." Now this answer is eminently typical of the knowledge of the average man as regards astronomy, especially of the motions of the stars and the moon, which he has seen so many times during his life. Mr. Hollis's unpretending little book will

give such a man a very clear and simple explanation of various astronomical phenomena, and the reader who masters it will no longer be puzzled to know whether the full moon is seen in the west at sunset or in the east, and he will also be able to appreciate to the full such absurdities as were recorded in a well-known novel where an eclipse of the sun was made to take place on the day of the full moon and to last over an hour. The book is illustrated with pictures and diagrams, and three of the latter are specially valuable—namely, those which show the horizons at various parts of the earth's circumference. Halley's comet has from a spectacular point of view been a disappointment, but the reader will find an excellent account of it in Mr. Hollis's book.

New Inventions.

A COMPLETE PORTABLE SET OF APPARATUS FOR THE RAPID QUANTITATIVE ANALYSIS OF THE URINE AND THE GASTRIC JUICE.

WE have received from the Reborat Company, of 8, Harpiane, London, E.C., a complete set of analytical apparatus designed for the quantitative estimation of the significant constituents of urine and of the gastric juice. The set provides for the following estimations in regard to urine: Albumin (phospho-tungstic acid precipitation), sugar (fermentation method in an ingeniously designed tube), uric acid (absorption of iodine), urea (in an approved form of ureameter), acidity (the addition of an alkali in a graduated tube termed the uracidimeter), phosphates (precipitation as magnesium ammonium phosphate in a "phosphatometer"), indican (by formation of indigo with perchloride of iron, subsequently dissolving the indigo in chloroform), sulphates (by precipitation with barium chloride, the insoluble sulphate of barium being measured in a specially designed tube),

ammonia (by adding neutral formaldehyde solution to neutralised urine and determining the acidity produced by the reaction of formaldehyde with ammonia), ethyldiacetic acid, specific gravity, and so forth. The tests for the gastric juice are for the most part qualitative, but a tube called the "quantitest acidimeter" is employed for determining the acidity of the gastric juice by a simple and rapid method. We have tested the apparatus in regard to its accuracy on carefully prepared standard solutions respectively of albumin, uric acid, sulphates, phosphates, and weak hydrochloric acid. The results were accurate, although the procedure proved at first to be a little difficult owing to a want of clearness in certain of the instructions given. In the estimate of the total sulphates, for example, no time limit is given for the aggregation of the barium sulphate, while in the estimation of phosphates a specified time for depositing is properly mentioned. The paragraph on phosphates is not clear in regard to making an allowance for dilutions in the table recording the quantity of P_2O_5 corresponding with the mark on the tube. It is not stated whether the calculations give P_2O_5, but we found by a practical test that that is the case, while in the sulphate test the results are evidently recorded as sulphur and not SO_3. It must be remembered that the medical man has not always the facilities or the experience of an analytical chemist, and therefore the instructions for the use of analytical apparatus for diagnostic purposes should be very clear and incapable of misinterpretation. We have, however, proved the utility, accuracy, and convenience of this set of apparatus for the quantitative analysis of urine, and with the instructions as to manipulative procedure rendered in clear, unmistakeable terms, there can be little question as to its value in diagnosis to the medical practitioner.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 16th, 1832.

FRACTURED RADIUS *v.* DISLOCATION OF THE WRIST.[1]

A man was admitted into the hospital with fracture of the radius just above the carpus. Mr. Fernandez had put on two splints and a bandage, and slung the patient's arm to his side in the usual manner. Mr. Brodie, however, took these off and said, "Gentlemen, this is a case of what they call dislocation of the wrist, and, strange to say, books and authors of the present day, even down to Sir Astley Cooper, still speak of dislocation of the wrist; now, for my own part, I never saw such a thing, nor do I think such a thing can occur, for in the wrist the ligaments are much stronger than the bones, and, therefore, where any force was used, the bones would certainly give way first.

Now, I will show you the way in which I do up these fractures; it is a plan too which I have always followed with success. You see that here is one projection below, arising from the dropping down of the fractured end of the radius, and here is another projection above, of the carpus. Well, now, I put a compress above and below on each of these projections, then I put a piece of strapping to each; the piece of strapping below I fasten over the splint above, and the piece of strapping above I fasten under the splint below, and thus steadily confine them, and then I put a roller over the whole. When the man's arm was thus put up, he expressed himself much easier. "About ten years ago," said Mr. Brodie, "a man came into the hospital, with a very severe accident. I believe it was an injury of the head, a compound fracture, or something of the kind. However, this man had two large bulging lumps, one above the wrist and the other below the radius. On examining the body after death, I cut across the muscles and tendons, and there I found a large quantity of extravasated blood; and down dropt the hand, and there was a fracture of the radius, just as in this case. A medical gentleman once sent to me to say, that he had a case of dislocated wrist, which he could not reduce, and from his description I was led to believe, that it was a subluxation. This patient died, and the medical gentleman examined the body; and on opening the wrist, he found just such a fracture of the radius as this."

To some remarks from some of the pupils who said they had seen a child's wrist frequently dislocated, Mr. Brodie said, "that such cases might be, but that he had never seen them;" adding, "Indeed, I believe Dupuytren says he never saw one."

[1] Clinical Remarks made by Mr. Brodie at St. George's Hospital, May 31st, 1832.

THE LANCET.

LONDON: SATURDAY, JUNE 18, 1910.

The Midwives Act Amendment Bill and the Incorporated Midwives Institute.

WE have received from the Incorporated Midwives Institute a copy of a letter which has been addressed to Lord WOLVERHAMPTON, in the character of Lord President of the Council—a post which he has just resigned—and enclosed with this is a copy of the amendments which the Midwives Institute desires to see introduced into the Bill. Those particularly interested in the matter will have in their hands the text of the Bill or will remember the summary of it published in THE LANCET,[1] and we print the suggested amendments on another page (see page 1728) in order that they may be able to apprehend clearly what these imply. At least one of these amendments deals with a question of considerable difficulty for which there is little chance of a solution satisfactory to all, and some of the others are likely to provoke divergence of opinion. They are put forward by an organisation rightly acting in what it believes to be the true interests of a very large body of practising midwives, and they have every claim for careful consideration. If we criticise them from the point of view of the members of the medical profession, we do so in no hostile spirit, while we must ask our readers to bear in mind present conditions, and their probable or, we may say, certain development. The training and registration of midwives and certain consequences arising therefrom, some of which are undoubtedly and regrettably prejudicial to the medical profession, are and will remain established facts in our civil life. That is to say, the law will continue to provide for the training and enrolling of midwives who are to have the care of mothers of the poorer classes in cases of normal childbirth, and will compel these midwives in certain emergencies to refuse to treat their patients unaided and to summon a medical man. Provision will apparently now be made for the remuneration of the medical man so called in, and there will be as time goes on an increasing supply of efficient midwives under a system from which mothers and children belonging to the humbler classes of the community will, it is hoped, derive considerable benefit. There will follow from this, however, almost certainly a diminution of the earnings of a large class of medical men from the practice of midwifery, and we must regard this circumstance as practically inevitable when discussing the Bill before Parliament and the amendments of the Incorporated Midwives Institute. All this was fully recognised in our columns when the Midwives Act of 1902 was struggling to become law.

The most important question raised is undoubtedly that of the remuneration of the medical man called in to assist the midwife. Ought the public body responsible for this to be the local supervising authority or (as provided by the Bill) the board of guardians? We are on the whole inclined to think that it should be the former, but we state briefly what appear to us to be the principal points for consideration on both sides. The object of the legislation in question is to ensure the bringing of children into the world under the best conditions reasonably obtainable for them and for their mothers. The local supervising authority is charged with the superintendence of these conditions in every respect so far as the work of the midwife is concerned, including the enforcement upon her of the law with regard to the summoning of the medical man. It seems to us hardly reasonable or businesslike to provide for the remuneration of the medical man in what must prove to be a large class of cases, and to place the duty of paying that remuneration to him in the hands of another body. We would point out that the guardians, to whom this duty alone in connexion with the furtherance of the policy of the Midwives Act is to be entrusted, are not interested in the fulfilment of the conditions necessarily precedent to the payments, and have other interests and responsibilities making a first call upon their attention. There has been a certain amount of experiment already in this matter, and we are of the opinion that the majority of the medical practitioners likely to be affected would rather find themselves looking for their fees to the local supervising authority than to the board of guardians, and that there is a good deal of force in the contention that the parents concerned would regard the intervention of the guardians through their relieving officer with distrust and dislike, a state of affairs which would be prejudicial to the mothers and children for whose benefit the Act was passed. On the other hand, there is the argument, which is entitled to the fullest consideration, that the inquiry into means which the guardians would have the power to make, and which they probably would make more searchingly than the local supervising authority, would do something towards checking a growing reliance upon public aid in matters where the individual ought to be compelled to retain his independence and to help himself. In this connexion, and from the point of the medical profession it may be argued that the intervention of the guardians might render the employment of the midwife less general, and that local medical practitioners would benefit. The whole question is one of great difficulty, and as we have submitted it may be impossible to find an answer to it completely satisfactory either to the medical profession, the midwives, or the public.

The next most important point raised by the Midwives Institute is with regard to clause 11 (i.) of the Bill, which proposes that "where a woman certified under the principal

[1] See THE LANCET, April 9th, 1910, p. 1039, et seq.

Act who has not given to the local supervising authority such a notice as is mentioned in section 10 of the principal Act[1] attends any woman in childbirth in any capacity other than that of a midwife, and a duly qualified medical practitioner is not present at the time of the birth, she shall, within 48 hours from the birth, give to the local supervising authority notice in writing of the fact that she so attended ....." From the point of view of the midwife this is objectionable because it would tend to prevent the employment by medical men of midwives as monthly nurses, in cases where the midwife, because she does not practise as such, has not given notice of an intention to do so. There is considerable force in this contention. Under the proposed clause a medical man might arrive at his patient's bedside to find that delivery had taken place five minutes before in a satisfactory manner, but that the nurse engaged was compelled either to lay herself open to a fine of £5 or to report his absence to the local supervising authority. Unless very good reason can be shown for the insertion of this clause, the evasion of which would be easy if not frequent, we agree with the Midwives Institute that it might well be omitted. But with the amendment to Clause 13, another important modification proposed by the Midwives Institute, we are not so much in accord. The amendment suggests that whereas Clause 13 of the Bill seeks to enable a local supervising authority to aid the training of midwives, it should also be empowered to make grants in aid of their maintenance. We question the desirability and the justice of stimulating artificially the supply of midwives by a State "bounty system." If midwives ought to be subsidised in the practice of midwifery, why not medical men? And yet if there had been a proposal made before the passing of the Midwives Act that the local authority should pay salaries to local medical men in consideration of their attending confinements at reduced fees it would have been condemned beyond doubt as tending to deprive the working classes of habits of thrift and independence, and as a suggestion for remunerating a particular profession at the expense of the ratepayer. Any such maintenance as that proposed should, in our opinion, be left to voluntary benevolent agencies. The other amendments concern midwives rather than the medical profession. Their demand for more representation upon the Central Midwives Board than is proposed by the Bill is not unreasonable, and the other topics to which they call attention relate to questions of administration and discipline as to which we do not feel called upon to express opinions.

Roman Medicine.

AN interesting contribution to the history of medicine is afforded by a book recently published by Dr. THEODOR MEYER.[2] We welcome the book because we believe that the study of the evolution of our science is not only interesting but valuable. Ancient medicine had its great discoveries, opportunities, schisms, and set-backs. By observing their influence upon the science of medicine as a whole we may hope to avoid pitfulls into which our forefathers fell. Dr. MEYER points out that but little is known of the medicine of the Romans in the early republican period, except that it was practically no more complex than that of primitive races, consisting chiefly of domestic remedies of simple character and of superstitious observances. It is remarkable that this simplicity should have persisted for so long, and the explanation of Dr. MEYER is that the prejudice of the Romans against technical professions and business of any kind hindered development. It was in the end the closer relations with Greek culture which gave the first impulse to the development of medicine on Roman soil, but even then the practitioners of medicine in Rome were for many years simply Greek slaves. This was due to the fact that free Greek physicians refrained from proceeding to Rome owing to the extremely unfavourable judicial and social treatment offered to foreigners by the Romans. As a result, the *servus medicus* became an essential feature of the household of most of the richer Romans. The natural consequence of the practice of medicine by persons of humble station and origin was that it was largely a matter of domestic remedies, since the scientific developments of Greek medicine were beyond the capacities of the Greek slaves. This is well demonstrated in the receipt-book of CATO the Censor, in which side by side with measures such as pomegranate for the treatment of worms and juniper in the treatment of urinary difficulties, there occur incantations and exorcisms against sprains and also other superstitious formulæ. When at length Greek learning and philosophy received encouragement at Rome it was chiefly rhetoric and jurisprudence which were studied at first, but later the cultured Roman began to include science within his purview, and thus medicine began to be studied, as may be seen in the encyclopædic works of VARRO, CELSUS, and others.

At first such study led to but little, if any, advance in the practice of medicine, which still remained in the hands of the humbler classes. The first attempt of free Greek physicians to settle in Rome towards the end of the third century B.C. failed, but during the course of the second century matters changed. Rome evolved from a simple capital to the world's metropolis, a proletariat large in comparison with the well-to-do citizens arose, and freed slaves began to practise medicine; moreover, the prejudice against paid professions began to lessen. Later, the bestowal by CÆSAR of citizen rights upon all free foreign physicians practising in Rome gave a further impetus to medical science which the pioneer work of ASCLEPIADES had given to Rome. When he began in about the year 90 B.C. to introduce a higher medicine to the Romans he had to contend against the popular character of its practice on the one hand, and the abstract interest taken in medicine as a science by the educated Romans on the other. He grafted his medical teaching upon the fashionable Epicureanism of the time, and thus afforded the Romans a scientific medicine after their own taste, and at the same time he reformed the practical treatment of disease. He opposed

[1] Notice of intention to practise in any area.

[2] Theodorus Priscianus und die Römische Medizin, by Dr. Med. et Jur. Theodor Meyer, Privat-Dozent für Geschichte der Medizin an der Universität, Jena. Jena: Gustav Fischer. 1909. Pp. 352. Price, bound, 8 marks; paper cover, 7 marks.

polypharmacy and the excessive use of emetics and purgatives, but encouraged a natural treatment by means comprehensible by the people. According to Dr. MEYER, his personality was also an important factor in his success. He describes him as a mixture of a thoughtful scientific physician and an experienced practitioner with a slight tinge of charlatanry. The further development of medicine upon the foundations laid by ASCLEPIADES soon occurred. A successful cure of AUGUSTUS by MUSA led to an advancement of the free practitioners in Rome to the knightly class and full citizen rights, with the result that the Romans themselves in increasing numbers adopted the medical calling. THEMISON, the most distinguished pupil of ASCLEPIADES, was the founder of the Methodical school, which exerted its influence for more than four centuries and reached its highest development in the work of SORANUS. In the teachings of ASCLEPIADES there was only a superficial compromise between the two divergent aspects of medicine, the theoretical and the practical. THEMISON endeavoured to find certain general indications of disease, and discovered, as he believed, that, stripped of accidental or non-essential features, they all showed certain simple common, general features, more especially in regard to the conditions of the secretions and excretions. In explanation of this he adopted the view of ASCLEPIADES in regard to the "pores" of the body, which were regarded as interstices between the solid constituents, these being regarded as composed of atoms. THEMISON separated three states—a "status strictus," in which the pores were constricted; a "status laxus," in which they were relaxed; and a "status mixtus," in which both conditions co-existed in different parts of the body. Dr. MEYER emphatically denies the view which is now often expressed that this doctrine of the common features of diseases was the sum and substance of Methodism. It was, he maintains, merely the basis upon which the Methodists built up and evolved their methods of treatment. They dealt but little with considerations of anatomy and physiology, and they concerned themselves with the study of causation less, or, as in the case of THEMISON, not at all. On the other hand, they went deeply into matters of pathology, symptomatology, and treatment; indeed, Dr. MEYER characterises their descriptions of disease as revealed to us in their writings, more particularly those of CÆLIUS AURELIANUS, as masterly. Their treatment was based upon their theoretical conceptions of disease, the "status strictus" being dealt with by relaxing agencies, and so forth, but they also were the first to differentiate between acute and chronic diseases and to modify their treatment accordingly. Moreover they did not confine themselves to a system of general treatment, but adopted measures for the relief of symptoms, not necessarily suggested by the "status" of the patient.

The long duration of Methodism depended upon its emphasising the practical aims of medicine, and in this connexion Dr. MEYER endeavours to vindicate the good name of a much-abused disciple of Methodism, THESSALUS of Tralles, who is quoted by GALEN as affirming that he could teach the art of medicine in six months. Dr. MEYER maintains that in this apparently boastful claim he only meant that he could impart the theoretical basis of medicine in that period, for he laid great stress upon the practical demonstration of disease and its treatment, and was, in fact, the first to deliver systematic instruction at the bedside. SORANUS appears to have done most to bring together the practical tendencies of the Romans and the scientific principles of the Greeks. He was perfectly educated in anatomy at Alexandria and was well versed in physiology, but he adopted the views of the Methodists, and his works demonstrate more than those of any other writer the catholicity and adaptability of this school. The great influence of the Methodical school even in its early period is demonstrated in the writings of CELSUS, which afford a clear view of the state of medicine in Rome in the middle of the first century A.D. Rome was at this time the arena for all philosophical and metaphysical contests, the practice of medicine was for the most part in the hands of trained physicians, but the old institution of the *servus medicus* still lingered, and some of the educated laity studied medicine, among them CELSUS. His work was simply a critical and eclectic review of the scientific medicine of his time. This is the reason that his writings are ignored by his contemporaries and why he exerted no influence upon Roman medicine. A similar review of the common or domestic medicine of the second half of the first century is afforded in the writings of PLINY, showing the mixture of the rational and the superstitious, in which the original popular factors can be differentiated from the Greek and Oriental additions. PLINY'S aversion to the Greek physicians and his neglect of their methods serve also to indicate the opposition which the inquiring minds of the cultured physicians had to contend against. One striking feature of the Roman medicine of the Imperial period is its practical character and the large number of the various recipes and directions for treatment. Although a pneumatic school arose in opposition to the Methodists, after the teaching of ATHENÆUS, and although its tenets were adopted by HERODOTUS and ARCHIGENES, amongst others, the therapeutic principles of the Methodists were more or less generally adopted, and their influence is visible even in GALEN, the champion of eclectic principles.

In summing up the influence of this remarkable man Dr. MEYER epigrammatically remarks that "GALEN was for mediæval medicine an epoch, for Roman times merely an episode." This he attributes to his endeavour to raise medicine from the grade of an art to that of a science. He was an investigator rather than a practitioner, whereby the practical was less in the foreground of his work, thus rendering his views foreign to the practical minded Romans. As Dr. MEYER sagely observes, it demonstrates the power of the Methodists that GALEN, who afterwards dominated mediæval thought for a thousand years, fought against its tendencies in vain in his own lifetime. After GALEN, a decline in medicine as a science occurred side by side with a decline in all branches of the higher culture. Later writings often consist of compendia of treatment—some prepared to supply the needs of a non-medical public, others for the use of physicians. Among these works may be included the writings of RUFUS, who probably lived in Rome in the time of TRAJAN, a work of ATHENÆUS, the "Compositiones" of SCRIBONIUS LARGUS,

and the Euporista of THEODORUS PRISCIANUS. It is this work to the consideration of which Dr. MEYER devotes his book. He gives a brief review of the few facts known about THEODORUS PRISCIANUS and translates the text of his writings into German. He was a pupil of VINDICIAN, who lived in the time of VALENTINIAN I., so that his work must belong to the end of the fourth century A.D. or the beginning of the fifth. Dr. MEYER agrees with VALENTINE ROSE that THEODORUS PRISCIANUS used the writings of GALEN as the basis of his own, more particularly in his first and second books. His third book was derived from SORANUS. He deals with external and internal diseases and with diseases of women. The only surviving fragment we possess of a fourth book gives some remedies against headache and epilepsy. Enough, however, remains of THEODORUS PRISCIANUS to warrant this introduction of him to our notice, while, as we have pointed out above, the study of the history of medicine should be part of the education of the cultured practitioner of medicine. Dr. MEYER'S book is a notable contribution to the history of Roman medicine. The subject has recently been before our readers in the interesting FitzPatrick lectures delivered before the Royal College of Physicians of London by Sir T. CLIFFORD ALLBUTT, and published in THE LANCET.[1] Dr. MEYER'S views seem to be in general accord with those of Sir CLIFFORD ALLBUTT, more particularly in assigning to ASCLEPIADES a higher scientific position than has generally been accorded to him. We commend Dr. MEYER'S book and Sir CLIFFORD ALLBUTT'S lectures to the notice of those interested in the history of medicine.

The Manchester Milk-supply.

THE control of the milk-supply, more particularly of that of large towns, is a subject of great significance in regard to the public health, and one with very important medical and economic aspects. It is a matter of distinct regret that administrative and political difficulties have so far prevented the adoption of general and uniform measures to ensure a satisfactory solution of the problem. It is therefore of special interest to notice the results obtained by the enlightened and public-spirited endeavours of the Manchester Health Department to ensure, so far as is consistent with their powers, that the supply of milk to the city shall be free from the dangers of tuberculous infection. A valuable record of the measures adopted, and of the results obtained, is given in a report on the investigations in the public health laboratory of the University of Manchester upon the prevalence and sources of tubercle bacilli in cow's milk,[2] by Professor SHERIDAN A. DELÉPINE; in a paper read by him before the Manchester Statistical Society on Nov. 10th, 1909, on the Manchester Milk-supply from a Public Health Point of View; and in a paper published in THE LANCET of May 14th, p. 1326. The history of the movement is briefly that in 1897, on the recommendation of Professor DELÉPINE and as a result of his observations on milk from tuberculous cows, Dr. J. NIVEN, the medical officer of health of Manchester, made arrangements for inspecting, and as far as possible controlling, the sources of the milk-supply, utilising the powers afforded under the Infectious Diseases Notification Act, 1890. The work was carried on tentatively for two years, but in 1899 the Health Department put in effect the powers obtained under the Milk Clauses of the Manchester General Powers Act, 1899, and has since systematically supervised the milk-supply. Professor DELÉPINE'S papers give a *résumé* of the work done since that time.

Samples of cow's milk intended for consumption are obtained at the railway stations or elsewhere within the city by the food and drugs inspectors under special precautions devised by Professor DELÉPINE and are submitted to bacteriological examination. All samples found to be capable of producing tuberculosis are traced to their sources by the medical officer of health and the veterinary surgeon. The latter inspects the cows on the farms sending tuberculous milk, and takes samples of the milk of each cow that appears to be tuberculous. The samples are tested in the public health laboratory, and when the milk of a cow proves to be tuberculous the farmer is required by the medical officer of health to isolate the affected cow, and is advised to have the animal slaughtered in the presence of the veterinary surgeon, advice which is generally followed. The methods adopted for the examination of the milk are the measurement of sediment or "slime" obtained by centrifugalisation, the microscopical examination of small portions of this sediment for cells, bacteria, and other foreign bodies, and inoculation experiments to determine whether virulent tubercle bacilli are present. The population of Manchester was 643,158 in 1908, and it is calculated that in the same year 62,000 gallons of milk entered the city daily. Some idea of the magnitude of the work involved in testing the milk may be formed from the facts that during the 12½ years, 1897 to 1909, with which the report deals 4997 samples were taken from cans of milk arriving in Manchester and 1048 samples of milk were collected at the farms from individual cows. Various charts and maps were prepared to indicate the districts from which the tuberculous milk was obtained, and on examining the conditions prevailing in the farms in these places it was found that the retention of old stock and unsatisfactory housing of the cattle were commonly present. In young cattle tuberculosis is seldom extensive, but as age advances numerous organs become attacked, including the udders. That the measures adopted have been productive of good is shown by the fact that the percentage of samples of milk collected at the railway stations found to be tuberculous has diminished; thus during 1897–1898 the percentage was as high as 17·2, while during 1907 it was 5·7, in 1908 it was 8·9, and in the first half of 1909 it was as low as 3·8. Repeated examinations of certain farms showed that the disease tended to recur in some of them even after a comparatively long period of freedom. Professor DELÉPINE states that the disease may reach the udder of one cow from another, while it is obvious that some farmers will buy inferior stock, which is not infrequently diseased; therefore he urges that so long as drastic measures for the eradication of tuberculosis in cattle are not adopted frequent inspection of farms is a necessity to secure a milk even comparatively free from tuberculous infection. In regard to the care of the milk after milking,

[1] THE LANCET, Nov. 27th, 1909, p. 1565.
[2] Extract from the Annual Report of the Medical Officer of the Local Government Board for 1903–1909. London: Printed for His Majesty's Stationery Office. Darling and Son. 1910.

interesting observations are recorded upon the amount of sediment or "slime," and it appears that it is difficult to obtain milk containing on an average less than seven grains of sediment per gallon, and that ordinary milk often gives a much larger quantity. Judged by this standard, the cleanliness of the milk has distinctly improved during the period under consideration owing to the greater precautions taken to ensure cleanliness in the cowsheds, in the persons of the milkers, and in the subsequent handling of the milk. The farmer usually strains the milk before filling cans with it, and in some dairies the milk is centrifugalised, but, as Professor DELÉPINE shows, straining may be a source of contamination, since the strainers are seldom sterilised and dirt may accumulate in them. Centrifugalisation removes a great deal of dirt and extraneous matter, but some of the bacteria cling to the cream. It is, therefore, obvious that these measures are insufficient and cannot be relied upon. To ensure pure milk it is important to eradicate tuberculous animals from the herds and pay due attention to the state of the cows, the stables, dairy hands, and utensils, and to avoid possible infection during transit by contamination by flies or other agencies. It is also important when the milk has to come from a distance to keep its temperature as low as possible, refrigeration being the best safeguard against the multiplication of bacteria.

The diagnosis of tuberculous disease of the udder in cows is very important in regard to the prevention of infection of the milk, since when this lesion is present the milk is certainly infectious, and lesions of the udders were found in one or more cows on at least three-fourths of the farms supplying tuberculous milk to Manchester. Although other sources of infection are possible, since bacilli may be present in cases of bovine tuberculosis without clear affection of the udder, this is undoubtedly the cause in the great majority of instances. Unfortunately, the diagnosis is a matter of difficulty by inspection and palpation alone, since tuberculous and other forms of mastitis present practically identical characters, and it is, moreover, impossible by these means to discover early tuberculous lesions of the udder. The one certain criterion is that afforded by bacteriological examination and inoculation, and it is only by a combination of these processes with veterinary inspection that the necessary accuracy for public health administrative work can be obtained. The delay of 10 to 20 days entailed by inoculation methods is a weak spot in this procedure, since it appears that some farmers, warned by the sampling of the milk, take advantage of this delay to remove suspicious cows from their farms before the arrival of the veterinary inspector. Professor DELÉPINE has therefore attempted to improve the technique of his microscopical methods for the examination of unmixed milk taken direct from the cow, and he believes it is possible by microscopical methods to recognise tubercle bacilli in the milk of more than 90 per cent. of the cows that yield infected milk, and that the remainder could be detected by submitting all samples giving negative results to the inoculation test on guinea-pigs. The results obtained by the Manchester health authorities under the guidance of Professor DELÉPINE and Dr. NIVEN and their collaborators and assistants, to all of whom Professor DELÉPINE acknowledges his indebtedness, are distinctly encouraging, and they should afford an interesting object-lesson to other local authorities and stimulate them to similar endeavours. That it is of the utmost importance that similar measures should be adopted generally is shown by the fact that it had been found that some of the farmers, after it was discovered that the milk they had been sending to Manchester was tuberculous, sent it elsewhere or used it to make cheese. Since it is now generally accepted that bovine tuberculous disease is communicable to man, and that tuberculous meat and milk are sources of danger, general precautions should be adopted as soon as possible. The complete eradication of bovine tuberculosis should be the ultimate aim as a prelude to the eradication of the disease in man, but since this is at present a counsel of perfection the most strenuous efforts should be made to avoid infection of the milk, and in their serious endeavours towards this object we may heartily congratulate the Manchester health authorities and their scientific advisers.

Annotations.

"Ne quid nimis."

THE LEGISLATURE AND THE PROBLEM OF THE FEEBLE-MINDED.

THE letters which have recently appeared in the *Times* and elsewhere over the signatures of the Bishop of Birmingham and other well-known persons, and which have called forth strong expressions of agreement from representative men throughout the country, should arouse the Government to a sense of the feeling, entertained by those who are competent to judge, that it is high time for legislative action to be taken on the lines laid down by the report of the Royal Commission on the Care and Control of the Feeble-minded. As it is very justly pointed out by Dr. Gore and his fellow signatories, the present moment, when the controversial issues which ordinarily divide parties and which consume so much Parliamentary time are of necessity laid aside, is peculiarly opportune for bringing forward a comprehensive scheme of reform to deal effectively with this problem of the feeble-minded, which in its bearing on the present and still more on the future well-being of the nation is very certainly of far more urgent importance than most of the questions that figure so prominently in election addresses. The proposals of the Royal Commission have now been before the public for nearly two years, and during that time they have met with a measure of approval from informed opinion, which is almost without record in the history of social legislation. Not only have the main lines of the Commissioners' plan been accepted as sound and practicable by the large majority of the experts who have had to do with this particular problem, but they have also been endorsed in important reports which have recently appeared dealing with somewhat related questions—viz., in the two reports of the Poor-law Commission and in the report of the Departmental Committee on the Inebriates Acts. While this fact affords strong confirmation of the value of the suggested method of dealing with the problem of the mentally defective, it is perhaps still more important as indicating the close connexion of that problem with a variety of other social questions on which it exercises a very disturbing influence. The feeble-minded, as we are told in the Majority

Report of the Poor-law Commission, constitute one of the greatest difficulties in Poor-law administration; their presence in large numbers amongst the inmates of the inebriate reformatories has been a chief cause of the miscarriage of the Act of 1898; as petty delinquents they are a source of trouble and disorder in prisons; while to the educationist they are, under present conditions, little more than an occasion for what he knows must be utterly wasted effort. But if the delay in grappling with the problem of the feeble-minded interferes in this way with the working of the existing machinery in these different fields of administration, it has an even more serious effect through the obstacles which it places in the path of reform. The administrative machinery for these various ends cannot be developed and specialised on the lines necessary to make it fit the requirements of modern conditions without such progress rendering it still less suitable for the feeble-minded paupers, or the feeble-minded inebriates, or the feeble-minded criminals, as the case may be, who in the present chaotic state of things would fall under its operation. And so it comes about that in these several social questions the inherent difficulties which help the forces of inertia are strengthened by the presence of this disturbing factor common to them all. On this ground it may be confidently asserted that the problem of the feeble-minded is of special and peculiar urgency, not only by reason of its intrinsic importance, but also because its solution on the lines of the comprehensive scheme recommended by the Royal Commission would do so much to clear the way for social reforms in other directions. By bringing all the various categories of defectives under the control of a single central authority such a scheme would relieve the other administrative organs of the State of work for which they are entirely unfitted, and would leave them free to perform their proper functions and to develop in adaptation and efficiency. At the present moment the force of this argument should be appreciated with special clearness, for it finds its most pertinent application in the case of the Poor-law, where some reconstruction is a matter of immediate necessity, and where such a reconstruction will be rendered very much easier if the mentally defective have ceased to be a factor in the problem. As matters stand, the feeble-minded tramps, the half-witted girls who drift about between the streets and the lying-in ward of the workhouse, and the rest of the defective population who have to be dealt with by the Poor-law authority are a serious impediment to the working of the administrative machinery; and, what is more, their inclusion in the category of the poor and destitute tends in no small measure to confuse and obscure the right conception of the purpose and function of the Poor-law, and is likely in this way to magnify the difficulties of what is already a sufficiently arduous problem. On every ground, therefore, of expediency, no less than of reason, it must seem clear that the adoption by the Legislature of the proposed scheme for the treatment of the feeble-minded would enormously facilitate the task of revising the Poor-law, and that it is, in fact, the natural and obvious preliminary to entering upon that task. The actual position of this question is in many respects unique; its extreme urgency is universally acknowledged; a scheme for its solution has been formulated after prolonged inquiry and consideration and has met with practically unanimous approval; and with the conditions thus ripe for Parliamentary action the accident of a political crisis affords an exceptional opportunity for immediate legislation. So rare an occasion should not be lost by legislators for whom the idea of social reform means more than a convenient theme for platform platitudes.

MEDICAL AND SURGICAL APPOINTMENTS TO THE KING.

THE following list of medical and surgical appointments to the King appears in the *London Gazette* of June 10th:—To be Physicians in Ordinary to His Majesty: Sir Francis Henry Laking, Bart., G.C.V.O., K.C.B., Sir James Reid, Bart., G.C.V.O., K.C.B., and Sir Richard Douglas Powell, Bart., K.C.V.O. To be Physicians Extraordinary to His Majesty; Sir Thomas Barlow, K.C.V.O., Bart., Sir William Henry Allchin, Dr. Bertrand Dawson, and Sir Alan Reeve Manby, M.V.O. To be Physician to His Majesty's Household: Sir Robert William Burnet. To be Sergeant-Surgeons to His Majesty: Sir Frederick Treves, Bart., G.C.V.O., C.B., and Sir Richard Havelock Charles, K.C.V.O. To be Honorary Surgeons in Ordinary to His Majesty: Mr. Rickman John Godlee, Mr. Anthony Alfred Bowlby, C M.G., and Sir William Watson Cheyne, Bart., C.B., F.R.S. To be Surgeon to His Majesty's Household: Mr. Hugh Mallinson Rigby. To be Surgeon Apothecary to His Majesty and to His Majesty's Household: Sir Francis Henry Laking, Bart., G.C.V.O., K.C.B. To be Surgeon-Oculist to His Majesty: Sir George Anderson Critchett, Bart., C.V.O. To be Laryngologist to His Majesty's Household: Mr. Milsom Rees. To be Bacteriologist to His Majesty's Household: Dr. Harold Robert Dacre Spitta. To be Dental Surgeon to His Majesty's Household: Mr. Charles Edwin Truman. To be Anæsthetist to His Majesty: Dr. Frederick William Hewitt, M.V.O. To be Chemist and Druggist to His Majesty: Mr. Peter Wyatt Squire. To be Surgeons-Apothecary to His Majesty's Household at Windsor: Mr. William Fairbank and Dr. William A. Ellison, M.V.O. To be Surgeon-Apothecary to His Majesty's Household at Sandringham: Sir Alan Reeve Manby, M.V.O. To be Surgeon-Apothecary to His Majesty's Household at Balmoral: Dr. Alexander Hendry. To be Honorary Physicians in Ordinary to His Majesty in Scotland: Sir Thomas Richard Fraser and Dr. David W. Finlay. To be Honorary Surgeons to His Majesty in Scotland: Dr. Alexander Ogston and Sir William Macewen, F.R.S. To be Honorary Surgeon-Oculist to His Majesty in Scotland: Mr. George Andreas Berry. To be Surgeon-Apothecary to His Majesty's Household at Holyrood Palace; Mr. William Black Alexander. To be Honorary Physicians in Ordinary to His Majesty in Ireland: Sir Francis Cruise and Dr. James Little. To be Honorary Surgeons to His Majesty in Ireland: Sir Charles Bent Ball and Sir Thomas Myles. To be Honorary Surgeon-Oculist to His Majesty in Ireland: Dr. Charles Edward Fitzgerald. Similar appointments have previously been held by many of these gentlemen either to the present King (when Prince of Wales) or to his late Majesty Edward VII., while some of the appointments are new.

AMERICAN PROCTOLOGIC SOCIETY.

THE Twelfth Annual Meeting of the American Proctologic Society was held at St. Louis, Mo., on June 6th and 7th. Dr. Dwight H. Murray (Syracuse, N.Y.) was President, and delivered an address on Undergraduate Proctology. Among the numerous papers read was a Brief Review of the History of the Society from its Organisation in 1899, by Dr. Lewis H. Adler, jun. (Philadelphia), secretary-treasurer. He said that a brief synopsis of the work of the society might impress the profession at large by what had been accomplished by proctology for the advancement of medicine. As the surgeon had rescued surgery from the barbers and the obstetrician the practice of midwifery from the ignorant and often grossly careless midwife, so the American proctologist, largely by means of this organisation, had advanced diseases of the rectum and sigmoid from the domain of quackery to a

recognised specialty, and had removed from the hands of the charlatan, to a great extent, a fertile field for playing upon the credulity and ignorance of the populace. This statement was supported by an account of the history of the society, including the titles and authors of the principal papers read at its annual meetings. Dr. Adler hopes that the publication of the transactions of the society will become a permanent feature, and those interested in the subject will find in them much useful information as to the work done and the progress made in this specialty.

MULTIPLE PNEUMOCOCCIC ABSCESSES OF THE LIVER.

IN the *Progrès Médical* of April 23rd Professor Henri Claude and M. M. Sourdel have reported a case of an unusual lesion due to pneumococcic infection—viz., multiple abscess of the liver. It has generally been supposed that in infectious hepatitis the infection takes place through the medium of the bile ducts (ascending infection), but the researches of Widal and his school have shown that the infection may commonly take place through the medium of the blood stream (descending infection). This has been found to occur in the hepatic complications of typhoid fever, pneumonia, and puerperal septicæmia, for the necropsies showed absence of angiocholitis. The case now reported is an example. A herdsman, aged 20 years and addicted to alcohol, was seized with severe pain in the side and had a rigor. After three days he was taken to hospital on Oct. 26th, 1909. The pain had almost disappeared and persisted only in the hepatic region. There was slight bulging in the right hypochondriac region. The whole abdominal wall was hard and tender on pressure and muscular resistance was marked. All the symptoms were most marked in the hepatic region. The liver was uniformly enlarged and extended four fingers' breadth below the ribs. On the lower lip was a group of herpetic vesicles. The tongue was moist and clean and the appetite was good. There was profuse diarrhœa without special characters. There was neither cough nor expectoration. At the base of the right lung slight dulness and "râles of congestion" were found. The pulse was 120 and the temperature was 104° F. The urine contained two grammes of albumin to the litre. Hepatic abscess was diagnosed. During the night the patient was restless, had constant rigors, and was covered with perspiration. On the following day there was bilious vomiting and the temperature had fallen to 99·3°. The urine was abundant and contained bile pigments, but there was no trace of jaundice. The abdomen was a little less painful and could be better examined. The liver was smooth, hard, and very large. The spleen was also enlarged. At the base of the right lung a small patch of crepitations and bronchial breathing were found. On the following day these signs disappeared. The temperature showed great oscillations—from 98° to 104°—and tended to be higher in the morning than in the evening. On the eighth day the acute pain had disappeared and the abdomen was again supple. Blood examination showed red corpuscles 4,500,000, and white 12,000, in which the percentages were as follows: polynuclears, 86·5; large mononuclears, 7·4; small mononuclears, 4·4; lymphocytes, 1·2; and eosinophiles, 0·4. The course of the fever, the leucocytosis, and, above all, the high percentage of polynuclears suggested suppuration. The signs in the hepatic region, in spite of the absence of jaundice, pointed to abscess, but in consequence of the difficulty of localisation an operation was not performed. The diarrhœa continued profuse; the stools were dark and fœtid and contained large quantities of bile. On Nov. 20th there was a hard swelling in the hepatic region, more diffuse than before. On the 24th there was slight jaundice and the urine became scanty and high-coloured. The jaundice increased, blood appeared in the stools, and death occurred on the 25th. The blood yielded a culture of the pneumococcus. At the necropsy the base of the right lung was found congested, and the mitral valve was thickened but showed no vegetations. The liver was much enlarged and adherent to the neighbouring viscera, but smooth and without trace of abscess on its surface. On section it was found deeply congested. At its centre was an abscess of the size of a small egg surrounded by a fibrous capsule and containing fœtid chocolate-coloured pus. Behind the abscess a large branch of the hepatic vein was thrombosed. The lower part of the liver was filled with small abscesses varying in size from a pea to a walnut. The gall-bladder was a little distended and contained a turbid fluid quite unlike bile. All the biliary passages were permeable and were not dilated. The splenic vein was thrombosed. The pus of the abscesses contained the pneumococcus and the colon bacillus. Evidently the primary pneumococcic lesion was at the base of the right lung. Infection of the liver seemed to have taken place through the blood, for there were no signs of inflammatory changes in portal spaces.

MEDICINE AND ATMOSPHERE.

THE atmospheric conditions of the last week have caused a general limpness and flaccidity in the community, a sense of oppression and languor due to the high saturation with moisture of the surrounding air. The rise of temperature in the shade has not been high, a degree or two above 70° F. at the utmost, but there was no getting away from the feeling of tiredness, and no advantage to be got from seeking shady places. The idea of a fire in the stoves of the sitting-rooms seemed absurd, and few people thought of meeting the weather thus. And yet, paradoxical as it may seem, artificial heat, under the conditions mentioned, is one of the best means of getting rid of the unpleasant feelings set up by these states of damp due to high saturation. Here we may take a lesson from the Swiss who employ dry heat with advantage when the air is damp though warm. The reasons for a fire—preferably of wood—are obvious; the air is dried, a current is made through the room and up the chimney, and the saturated atmosphere is made endurable through radiation. Those who have radiators in their houses will do well to have them set going to a moderate extent if the extreme mugginess returns, for it is really surprising what a feeling of coolness is thus produced. People smile at the Englishman's staple conversational topic, "the weather," but in truth its vagaries and changes have a great influence upon the energies and the movements of the population of these isles. The misery of those who retire to the dark seclusion of the cellar during periods of electric disturbance commands the sympathy of those more fortunately constituted persons who can brave the elements without anxiety. Many of the mental states of sensitive persons are directly due to atmospheric conditions which cannot be explained, although we may recognise them as actual existences. A certain amount of scientific investigation has been bestowed upon the alterations of pressure and the atmospheric changes generally which affect those who ascend to great heights or who go down to great depths, but work is still required in this direction on behalf of those who are contented to live on the plains, and yet have to endure painful feelings, rising at times to positive torture, from causes which are perhaps capable of modification by some simple physical remedies. Knowing the susceptibility of some people to certain atmospheric conditions, we merely wait for the weather to change, instead of trying to devise means by which

accommodation to the existing elements may be obtained, either by modifying the external conditions or by making the body harmonise better with its surroundings. During the hot weather of the first week in June of this year the way to combat languor was to light a fire; we are not at all sure that the public and the medical profession might not find between them other simple measures for dealing with physical ills, whose atmospheric origin is as yet not understood.

TEMPORARY RECOVERY IN STOKES-ADAMS DISEASE.

IN the *American Journal of the Medical Sciences* Dr. H. C. Earnshaw has reported a remarkable case of Stokes-Adams disease in which temporary recovery occurred. The patient was a well-developed man, aged 50 years, with reddish-grey hair, and florid complexion. He did not take alcohol; he used tobacco but not to excess. There was no history of syphilis. He had never been seriously ill. On Nov. 19th, 1908, he went to bed in his usual health. On getting up in the night he lost consciousness for about half a minute and found he had dropped on his knees. On arising he did not feel very weak and went back to bed. Twice more during the night in getting up he fell, but got back to bed. In the early morning he vomited. When seen on the morning of the 20th he was pale. At times he became very pale, the pupils contracted, the eyelids fluttered, the eyeballs rolled upwards, the facial muscles twitched, and a general convulsion followed with loss of consciousness. The pulse disappeared and the veins of the neck pulsated. Suddenly a faint flush appeared spread over the face, consciousness returned, and he looked round bewildered, but took up the conversation where it had stopped. Then the pallor gradually returned but not to such degree as before the attack. Occasionally he vomited, but there was no nausea. The pulse was 40 to 50, strong and regular, and after the convulsions increased slightly in rapidity. The cardiac dulness was normal; the sounds were strong; the pulmonic second sound was slightly accentuated; a faint systolic murmur was heard at the apex and was not transmitted. The urine contained albumin, epithelium, and an occasional granular cast. The attacks continued all day. Next morning the pulse had increased to 60; through the day an occasional convulsion followed by flushes occurred. On the following day the pulse was 70 and there was only a very occasional flush. Convalescence was then uninterrupted and by Nov. 27th he had completely recovered and the pulse was 80 to 90 and the urine normal. On Dec. 27th, while he was at the telephone, he fell, and a second attack followed and ran a similar course to the first one. On Dec. 29th the pulse was 60, but in the attacks there were pauses of 10 seconds. On Jan. 1st, 1909, the pulse-rate varied from 57 to 16 and during the pauses the pallor was extreme. Curiously, the lips retained their colour and the hands their warmth, though the lower limbs were cold. On Jan. 2nd the condition was alarming; one convulsion followed another, each lasting 20 seconds. The jugular veins were very prominent and pulsated more frequently than the radial pulse. On auscultation over the præcordium feeble auricular contractions could be heard between the ventricular beats and during the pauses. The ventricular sounds were weak, and the rate about 25, while the jugular pulsation varied from 80 to 100. Dr. Pepper of Philadelphia saw the patient in consultation, and took a tracing which showed complete heart-block. On Feb. 14th he was able to sit up in a chair, and on the 21st he went to the Johns Hopkins Hospital, where he had several attacks, under the care of Dr. Thayer. He returned home and a month later, on June 14th, another attack began. After six weeks the symptoms of heart-block disappeared, complete recovery followed, and the patient returned to business and was able to work as well as before. On Dec. 16th the pulse was 88, regular, full, and strong. A faint systolic murmur was heard at the apex. Subsequently an attack lasting several days occurred. Many drugs—nitro-glycerine, atropine, strychnine, morphine—and inhalation of oxygen were tried, but appeared to have no influence on the heart-block. It is difficult to understand how temporary recovery can take place from the lesions which give rise to heart-block—gumma, fibrosis, and fatty and calcareous degeneration. Some observers have suggested that as the union between the auricles and ventricles is very close muscular fibres outside the bundle may assume a compensatory function. It is conceivable that iodide might have some influence on a gummatous lesion, but in the present case syphilis seemed to be excluded. Dr. Earnshaw suggests that there was some sclerotic change in the nutrient vessels of the bundle which impaired its nutrition only when the local circulation was further interfered with by some temporary cause, possibly vaso-motor.

TERRA "INFIRMA."

THE instability of sea and air is proverbial; it seems the destiny of South-Western Italy to assert the same characteristic for the earth. In that region telluric tremors are so frequent that they are scarcely noticed by the natives; subterranean rumblings are as little heeded as the din of the street in great cities; it is only when the tremor becomes a shock and the rumbling has risen to a roar that the population realise that another earthquake has occurred. Fortunate are they if the result is not a cataclysm, engulfing tenements by the hundred and their inmates by the thousand, and adding another to the long list of such calamities as, beginning (historically) with that of A.D. 526, closes, for the time, with that of Dec. 28th, 1908! In a few seconds the whole physiognomy of a district or province may be changed, till the ordnance surveyor, recommencing his task, finds villages replaced by valleys and fields by lakes, till, in the words of a victim to one of these latter transformation-scenes, "I went to bed a farmer and woke a fisherman." South-Western Italy, indeed, may be justified in applying to herself the famous lines in which Juvenal describes the Rome of the first century:—

> "Nos urbem colimus tenui tibicine fultam
> Magna parte sui,"

only for "urbem" substituting "terram." In the sense that the sustaining power of the earth's crust may get unequal to the weight imposed upon it—a condition of things clearly proved as possible by Professor Palmieri of the Vesuvian Observatory in his treatise on the Ischian earthquake of 1883—she is warranted in looking with grave misgivings on the attempt to resuscitate Messina or Reggio Calabria on the old lines; nay, as a recent expert in the architecture required in earthquake-haunted regions remarked, even the running up of wooden huts on an extended scale has its dangers, if carried out with only a perfunctory testing of the "bearing power" of the soil. Necessary, perhaps, as a provisional means of supplying shelter the huts may ere long (for memory even in those regions is short) be replaced by houses, and a hamlet, or village, or a town itself, reappear, only to become a candidate for the doom of its predecessor. Soundings of the soil, deep-seated as well as extensive, must be taken before dwellings for a population of any magnitude can safely be erected; nay the geological expert must be called in to demonstrate that the area to be built over should be proof against seismic visitation, such, for example, as the valley of the Po and its immediate environs which, in the words of an authority on "*pathologie tellurique*," "sono in condizione privilegiata

rispetto ai terremoti" (are in a privileged state as regards earthquakes). The recent terrible cataclysm in the Basilicata, demanding, as it does, a relieving organisation only second to its Siculo-Calabrian predecessor, has sequelæ of its own of the gravest import for the Italian Government. "Why remain on a soil that, in the twinkling of an eye, may collapse and involve in ruin the labour of years, and in death the lives of an entire population?" Such are among the questions put to themselves by the agricultural families in South-Western Italy and answered by the immigration of thousands upon thousands annually to the New World. With every recurring earthquake the life-blood of the population undergoes depletion, and the young, the lusty, and the enterprising are lost to the country, leaving only the elderly and the weakly, not to say the decrepit, to add to the birth-rate. An alarming prospect this for a nation whose physique is not improving, as witness the rejection of nearly 40 per cent. of the youth drawn upon for military service! There are unreclaimed regions enough in the peninsula and the islands to accommodate most of these emigrants, if the reclamation works were only prosecuted with the intelligence and the energy required. That is the true "Italia Irredenta" for the present generation of Italians, not the outlying patches of Italian-speaking population on the Swiss or the Austrian slopes of the Alps or in the Istrian Triangle, or in the island of Malta. Concurrently with this work of redeeming from inertia, and restoring to healthy activity, the long derelict and deteriorated champaign or seaboard, epidemics will gradually disappear and a robust peasantry will earn a living wage, untempted to undergo the self banishment of voluntary emigration or to reinforce an alien and often an unsympathetic civilisation with elements which can ill be spared at home. If such a consummation should be brought about by the "telluric storms" and cataclysms of the last decade, Italy may come to look on these as blessing in disguise, regarding them as Nature's "oracular response" to the questions which have harassed her for centuries, a response which is really an appeal to all that is most enlightened, most masculine, and most patriotic in her organism.

THE FUNCTIONS OF THE PITUITARY BODY.

THE *Johns Hopkins Hospital Bulletin* for May, 1910, is wholly devoted to the description of a most interesting research carried out by Dr. S. J. Crowe, Dr. Harvey Cushing, and Dr. John Homans in the Hunterian Laboratory of Experimental Medicine at the Johns Hopkins University. The English investigator reads an article such as this with unstinted admiration of the thoroughness of the work, not unmixed with envy of the perfect conditions under which the task has been accomplished. The object of the work has been to determine whether the hypophysis cerebri in whole or in part is necessary to the maintenance of life; what symptoms occur during the period of survival; what symptoms are caused by partial removal; and, finally, which part of the gland is chiefly responsible for such symptoms as may follow wholesale destruction of the gland. The sum total of previous investigations has given forth an uncertain voice on every one of these points. Over 100 hypophysectomies were performed on dogs with all the aseptic care and circumstance that belong to human intracranial surgery. The method adopted has been Paulesco's, in which the base of the brain is approached by a temporal opening, a contralateral temporal opening being made to facilitate manipulation. The temporal lobe is lifted and an adequate access to the pituitary gland is thus assured. Certain operative complications occurred a few times, but the symptoms which followed total and partial hypophysectomy were not to be ascribed to injury of the brain, as is proved by respiratory and circulatory graphic records made during the operations, as well as by the absence of such symptoms when the gland was fragmented but not removed. The experimenters find that total removal of the gland leads to "apituitarism," which ends in death, in adult dogs after two or three days, in puppies after an average period of 11 days. The symptoms of apituitarism begin to be manifest about 24 hours after operation; the dogs become irritable and dull, the hind limbs move stiffly and unsteadily, the back is arched, the body temperature falls with the blood pressure, pulse, and respiration-rate, and life ends in coma. In young dogs the urinary output is increased, in older animals it is lessened. Similar symptoms follow removal of the anterior lobe alone, but if the posterior lobe alone be removed nothing happens. Partial ablation of the anterior lobe does not prove fatal, the smallest remnant proving adequate for maintenance of life; but after continued observations certain definite changes were noted which are of great interest in relation to those forms of infantilism which are associated with pituitary inadequacy in the human subject. The most constant phenomena were adiposity with dystrophy of the sexual organs in adults, and persistent sexual infantilism in animals operated on before adolescence. More or less often cutaneous changes were noted, also polyuria, glycosuria, low temperature, and psychic disturbances, together with a lowered resistance to infection and injury, the shock of which tended to precipitate the symptoms of apituitarism. After total removal it was found possible to prolong life by glandular transplantation or by injection of anterior lobe emulsion, while injection of boiled anterior lobe extract into animals in states of hypopituitarism excited a febrile response which the authors liken to the phenomena of anaphylaxis.

TUBERCULOSIS CONFERENCE.

A CONFERENCE under the auspices of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis will be held in Edinburgh from Friday, July 1st, to Tuesday, July 5th. Professor W. Osler will preside, and it is hoped that many of the authorities on the various aspects of tuberculosis, both in the United Kingdom, America, and the continent, will take part in the debates. On Saturday morning various addresses will be delivered to the teachers and scholars in the Edinburgh schools, while the afternoon will be occupied with the inauguration of the Royal Victoria Hospital Farm Colony at Springfield, Lasswade; a garden party will also be given by the committee of the Royal Victoria Hospital. On Sunday, at 3 P.M., a special service for university students and visitors will be held in the McEwan Hall, and an address will be delivered by Professor Osler. On Monday the Tuberculosis Conference will be held in the Rainy Hall from 10 A.M. to 12.30 and from 3 P.M. to 5.30. In the morning the subject for discussion will be the Avenues of Infection in Tuberculosis, while in the afternoon Preventive Measures and the Administrative Control of Tuberculosis will be considered. At 8 P.M. the eleventh annual meeting of the association will take place in the United Free Assembly Hall, when Lord Balfour of Burleigh, the chairman of the committee of the association, will preside. After the meeting the Provost, magistrates, and council of the city of Edinburgh will hold a reception for the delegates to the conference. On Tuesday the conference will conclude with discussions on the Incidence of Tuberculosis in Childhood, and on the Working-man in Relation to Tuberculosis. In connexion also with these meetings there will be a tuberculosis exhibition in the New College Buildings, which will be opened by the Countess of Aberdeen on July 1st.

This exhibition will be open daily to the general public, and special arrangements for conducting school classes round the exhibition will be made. We feel that this conference is of the highest importance, both as regards the education of public opinion on all matters relating to the prevention of tuberculosis and also in offering opportunity for the members of the medical profession to acquaint themselves with recent developments in the fight against this disease. Full particulars as to the arrangements for the conference can be obtained either from Dr. W. Leslie Lyall, 8, Murrayfield-gardens, Edinburgh, or from Dr. James Miller, 24, Queen-street, Edinburgh, the honorary secretaries.

VENTILATION OF TENTS IN THE TROPICS.

IT is now the fashion to talk of hygiene and sanitation in India; these subjects are popular in newspapers and magazines, but the resident in India experiences little change in ways of living, and as for comfort, people of every class and race there will go without it, if they can have more or less of luxury. The poorer classes, especially of the mixed races, who are mostly Christians of a sort, will suffer any privation in order to wear black clothing as a sign of mourning, but they will shut their windows at night for fear of the influence of the night air, and the poorest of Indians shut out the daylight from their houses by screens, although they begin to be familiar with all the precautions with regard to light and ventilation that are taken in hospitals. This is the season when the Indian official is on tour: the magistrate, the forest officer, the policeman, the engineer, pass five months of the year in camp, and many are the devices which these men employ to render life more agreeable and to facilitate the transport of their property. We have only to visit the great purveying firms in order to see the variety of goods prepared for the outfit of dwellers in tents. Furniture, cooking-gear, condensed foods, clothing, medicine chests, weapons, miniature libraries, are all there, but, strange to say, the tents remain pretty much what they were 30 or 40 years ago in the matter of ventilation. They are certainly more portable and more attractively built than before, but they are just as devoid as ever of provision for the circulation of air, for, above the entrance, which is from five to six feet high, there is no opening, and the air is stagnant even at the hottest period of the day, when there is no wind and circulation is most needed. It is hard to believe that so many educated men should have borne the discomfort of the touring tent for so many years without any attempt to find a remedy, but the evidence against them is overwhelming. They have doubtless all been taught that the air is less affected by the sun's direct ray than any other substance, and a simple test with the thermometer would show them that the air in the tent is hotter than the air outside, because it is inclosed and cannot circulate. Even at nightfall when the air without is cooling that in the tent cools much more slowly, being protected by the thick canvas. Part of the heat in a tent comes in with the light through the entrances, and these are covered by blinds that obstruct at least 60 per cent. of the passage, so that, unless a light breeze is blowing, a tent is always stuffy in hot weather. When the wall of a tent is erected around a leafy tree the best conditions of outdoor life are found. There is overhead a roof which arrests the sun's direct ray and affords perfect ventilation. Some approach to these conditions may be made in a tent by means of a slight alteration. One or more openings must be made as near the top of the tent as possible. They should be held in shape by strong open netting and protected by flaps from showers or the entrance of direct sunlight. These openings must be large, for they have to deal with a large volume of air. This ventilation will also assist the action of the wet screen that is used to cool and moisten the air at or near the entrance to a tent. When a tent is pitched in one place for several weeks at a time more complete arrangements may be made for ventilation, based on the varying absorption of heat by similar substances of different colours. The absorption by black is, for example, greater than white, and this fact may be utilised in a tent in the form of a circular canvas shaft or chimney dyed black and supported by a bamboo within which passing to the top engages with the sling of a hoop which distends the mouth of the shaft. The effect of this canvas shaft has not yet been measured, but a very thin iron shaft 22 inches square and 10 feet high exposed to the sun produced a current of 26,853 cubic feet of air per hour. The swinging punkah in a tent produces no ventilating current; it simply churns the air and prevents it from stagnating about the human body below it. It promotes, however, evaporation. The ventilating canvas tube continues to operate so long as any difference of temperature exists between the air in the tent and that outside of it, causing a complete and constant renewal of the atmosphere of the tent.

THE Board of Trade proposes to appoint a small Departmental Committee to advise as to what changes may be necessary in the system of sight tests for officers of the Mercantile Marine now in force. Evidence, we understand, is invited from interested persons.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on June 9th, Mr. BUTLIN, the President, being in the chair.

A letter was read from the Right Hon. Earl Howe, G.C.V.O., Lord Chamberlain to Queen Alexandra, conveying Her Majesty's thanks for the address of condolence of the President, Vice-Presidents, and Council of the College.

A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the recent examination 132 candidates presented themselves, of whom 36 were approved and 96 were rejected.

A report was received from the Court of Examiners respecting candidates found qualified for the diploma of Fellow, and in accordance with this report it was resolved to issue diplomas of Fellowship to 22 successful candidates.

In accordance with a report from the Nomination Committee it was resolved to reappoint all the present examiners.

A letter was read from Sir Henry Morris, Bart., reporting the proceedings of the General Medical Council at its recent general session. It was resolved that the letter be received and entered on the minutes, and the best thanks of the Council were given to Sir Henry Morris for his services as the representative of the College on the General Medical Council.

The PRESIDENT consulted the Council about sending a representative of the College to the Fifth International Congress of Obstetrics and Gynæcology to be held at St. Petersburg in September next, and Dr. Amand Routh was chosen as a representative of the College.

The PRESIDENT reported that a meeting of the Fellows would be held at the College on Thursday, July 7th, for the election of four Fellows into the Council of the College in the vacancies occasioned by the retirement in rotation of Mr. John Hammond Morgan, C.V.O., and Mr. Charles Barrett Lockwood, by the death of Mr. Henry Hugh Clutton, and by the resignation of Mr. George Arthur Wright.

A vote of thanks was accorded to Mr. Morgan, who does not seek re-election, and to Mr. Wright, for their services to the College.

The thanks of the Council were voted to the board of guardians of the parish of St. Marylebone for the gift of a number of old surgical instruments.

THE HEALTH OF THE BRITISH TROOPS IN INDIA.

Surgeon-General F. W. Trevor, principal medical officer to His Majesty's forces in India, has made, under date of May 10th, a most interesting report. In directing this report (which is given below) to the notice of the general officer commanding the various divisions Surgeon-General Trevor draws attention to the very favourable results obtained during the past year in improving the health of British troops in India, and the high appreciation of the good work which the Commander-in-Chief has expressed.

The accompanying tabular statement shows the position at a glance :—

Year.	Average strength.	Average number constantly sick.	Total invalids sent home.	Total deaths.	Ratio per 1000.									
					Admissions.	Deaths.	Constantly sick.	Enteric fever.		Dysentery.		Malaria.		Venereal.	
								Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1903–1907 ...	70,495	3808·65	1668	741	879·3	10·51	54·02	16·8	3·38	13·9	0·48	174·1	0·29	161·5	0·15
1908	68,522	3139·10	1078	623	836·2	9·11	45·81	14·6	2·74	14·4	0·42	244·6	0·51	69·8	—
1909	71,275	2879·73	607	444	717·5	6·23	40·4	8·9	1·59	11·2	0·25	203·2	—	67·8	—

STATEMENT OF PRINCIPAL MEDICAL OFFICER.

It will be seen that this improvement has been progressive for some years and is doubtless due to a variety of causes, the more important being (1) an enhanced appreciation of the benefits accruing from anti-enteric inoculation on the part of both officers and men and increased efforts on the part of medical officers to carry out these inoculations and to detect mild or ambulant cases of enteric fever which formerly escaped detection; (2) the provision of steam disinfectors in various large garrisons and a greater attention to the details of prompt and adequate disinfection of bedding and clothing; (3) steady improvement in the sanitary condition of cantonments; (4) the greater interest taken by commanding officers and others in the sanitary condition of barracks and lines; and (5) an increased appreciation on the part of the men of the value of a rational mode of life, coupled with an intelligent conception of the principles of elementary hygiene.

It is only by a constant coöperation between commanding officers, cantonment magistrates, and medical officers that a high degree of sanitary efficiency can be maintained, and the results now brought to notice are highly encouraging for further efforts in the same direction.

2. At the present time nearly 45,000 men serving in India have been inoculated against enteric fever and the incidence of this disease among the troops serving in the command has fallen from 16·8 to 8·9 per 1000 of strength. It is desirable that continued effort be made to increase the numbers of men inoculated, and thereby secure a further reduction of this disease. To this end it is urged that no opportunity should be missed to impress upon officers and men the advantages to be obtained by submission to inoculation against enteric fever.

3. It is noticeable that the incidence of dysentery has been reduced. Our knowledge regarding the precise etiology and prevention of this disease is still imperfect and calls for further investigation and effort. It is desirable that in relation to this disease, enteric fever, and cholera the importance of constant and intelligent supervision of water-supplies, in respect of source, storage, and methods of distribution, be not overlooked.

4. The excessive incidence of malaria among troops is still a matter of anxiety. It is true there has been some improvement, but there are many points in connexion with its prevention which demand increased investigation and effort. The part played by mosquitoes in the dissemination of fevers should be persistently impressed upon the men and encouragement given to them to construct mosquito traps in the barrack-rooms. In addition to the ordinary measures for the extermination of these insects, more care needs to be taken to secure a higher standard of cleanliness in the barrack-rooms, as there is much reason to believe that neglected and dusty rooms are a fruitful source of increased prevalence of mosquitoes. As regards the use of mosquito nets, every opportunity should be taken to encourage their use, and where regimental or other funds are available enormous benefits may be anticipated if officers commanding be encouraged to provide these protections for their men, and induce men to use them, especially when sleeping out of doors. It is recognised that the financial difficulties in the way of providing nets for all the men are great; but material progress in this direction will be secured if nets are provided for and those actually infected with malarial parasites be induced to use them. To this end medical officers and those in charge of clinical laboratories should make every endeavour to detect "crescent" carriers, furnish nominal rolls to commanding officers of these virulently infected men with a view to their constantly sleeping under nets, and thereby reduce possibilities of dissemination of the parasites to others. Closely connected with this subject, I would remind you that recent research has shown that certain fevers of an indefinite type are conveyed by sand flies, and it is desirable that every effort be made to get rid of these insects.

5. I wish, further, to impress on all medical officers that the sanitary measures which have been so successful in the past should be amplified and carried out with greater vigour, if possible, during the ensuing season. In some cantonments the standard of efficiency is high, but in many others there is room for much more zeal and improvement. As the number of sick under treatment in hospitals has been greatly reduced, medical officers have more spare time at their disposal for work in barracks and lines and for research work. Activity in these directions is of the greatest importance in the prevention of disease, and it is only by frequent visits to barracks and the exercise of personal observation that the actual conditions under which the men live can be studied and defects or errors discovered and eradicated. It is particularly desirable that, in addition to ordinary or official inspections, the barracks, lines, and their surroundings be visited at unusual hours—that is, when inspection is not expected.

6. Unexpected visits to latrines, especially late in the evening, are of great importance. The use of the wet system of conservancy, as authorised, has resulted in the almost total absence of flies from latrines; this system should be strictly carried out. The pernicious influence of flies as disseminators of disease is well recognised, and every effort must be made to abolish these insects from cantonments. As regards incineration, it must be admitted to be a valuable means of disposing of rubbish, litter, &c., and has been used successfully for burning solid or semi-solid excreta, but evidence is wanting to show that it has disposed satisfactorily of liquid excreta in all places where tried and under all circumstances. Incineration must be regarded as a valuable asset to our means of defence in preventing disease, but at the present time it cannot be recommended as the *sole* means of conservancy in cantonments. In some cases where incineration has been carried on experimentally it has resulted in the production of a serious nuisance. It is desirable that constant attention be given to the practical working of incinerators, and surprise visits of inspection

made to observe the actual conditions of their working, in order that we may obtain the fullest information as to the precise rôle which they can play in our conservancy methods.

7. Soldiers' homes and institutes should be visited at the hours when the men use them, so that their sanitary condition may be noted. Special attention should be directed to the arrangements made for food storage, serving of food, the cleanliness of cooking utensils, and the whole sequence of events from purchase of food to the actual issue to the men. In a word, everything that concerns the personal hygiene of the soldier should be inquired into and advice given when necessary.

8. The condition of the men's bedding and clothing calls for careful scrutiny by medical officers. These articles need frequent exposure to the sun's rays, and it is suggested that much benefit would result if units systematically carry out this practice. The blankets in use should be distinctly marked either in worsted or by a metal tally with the man's name and number, so that some control be exercised over the use and issue of these articles, and that, in the case of infectious disease, there can be no doubt about the disinfection of the bedding. A mutual exchange of views between medical officers and commanding officers on this subject is desirable, and every effort made to place these issues under efficient sanitary control. Slackness in regard to this matter is one of the weak points in organised efforts to prevent disease.

9. Lastly, I would mention that during recent inspections it has been noticed that the eyesight of second- and third-class shots has not been frequently or efficiently tested. As bad shooting may be due to defective vision, capable of remedy by the provision of suitable glasses, it is desirable that the vision of these inefficient shots be systematically investigated and efforts made to remedy any disability.

MEDICINE AND THE LAW.

The Charity Commissioners and the Variation of Charitable Bequests.

A VERY important judgment of the Court of Appeal was delivered recently in a case in which the corporation of Wandsworth appealed from a decision of Mr. Justice Eve refusing to interfere with an order made by the Charity Commissioners. The order now set aside was made in connexion with the carrying out of the will of Mr. Benjamin Weir, who left two freehold houses and a large sum of money upon trust for the establishment of a dispensary, cottage hospital, convalescent home, or other medical charity for the benefit of the inhabitants of Streatham and its neighbourhood. The trustees were directed to use one of the houses as a hospital until the other, which was subject to restrictive covenants as to its user, could be converted into a hospital, when the two were to be used in conjunction. The covenants relating to the second house expired in 1907, the testator having died in 1902. Meanwhile, however, the trustees, with the sanction of an order from the Charity Commissioners, were about to carry into effect a scheme whereby the bulk of the money might be applied to enlarging and maintaining the Bolingbroke Hospital at Battersea, part of it only being devoted to a nursing home and dispensary, for which the two houses were to be used, and a sum of £5000 had in fact been paid to the Bolingbroke Hospital, which was to be renamed the Weir and Bolingbroke Hospital. The corporation of Wandsworth objected to this scheme on the ground that it did not carry out the wishes of the testator, which were obviously to benefit Streatham by the institution of a hospital within its boundaries under the name of the Weir Hospital. The Master of the Rolls, in delivering a considered judgment of the court reversing the decision of Mr. Justice Eve, laid down the principles governing the carrying out or variation of charitable bequests, after defining the jurisdiction of the Charity Commissioners as identical with that of the Court of Chancery and to be exercised upon the same principles. The first duty was to carry out the directions of the testator, provided that they were not either contrary to public policy or impossible of fulfilment. There was no evidence to show that a hospital could not be established as directed by the testator on such a scale that the whole of the money could properly be spent upon it. The trustees had to obey the terms of the will and had no right to say that in their opinion the hospital proposed would be of no use, or to bring about such a state of facts as would render it impossible to apply the whole income of the fund in maintaining it. The scheme sanctioned by the Charity Commissioners was not authorised. If they had gone wrong in a matter of detail only the court would not have interfered, but it was a question of principle, and it was the duty of the court to intervene because the rules of law governing such matters had not been complied with. The court expressed its surprise at the direction to pay £5000 to the governors of the Bolingbroke Hospital having been given before there was any scheme before the Commissioners. This decision of the Court of Appeal is likely not only to be accepted as a correct enunciation of the law upon the subject dealt with, but to be welcomed by those who desire that would-be testators should not be deterred from making charitable bequests. Such testators are very often guided by personal regard for a locality or for a particular class of beneficiaries, and it would be extremely likely to make them leave their money to other objects if they saw the charitable wishes of their neighbours frustrated at the will of their trustees or of the Charity Commissioners. It is quite possible that the Bolingbroke Hospital scheme might have been one of more marked public utility than the one which Mr. Weir devised, but this did not preclude him from having the right to dispose of his money as he chose, subject to the two conditions indicated by the Master of the Rolls.

An Action Against a Medical Man for the Loss of a Wife.

In the London Sheriff's Court recently a jury was asked to assess the damage suffered by a plaintiff owing to the loss of his wife, the defendant being a medical man, who had been called in to treat her, and owing to whose admitted negligence she had died. The liability of the defendant to compensate the plaintiff was not disputed by the former, and it was through his having allowed judgment to be entered against him that the case had been remitted from the High Court in order that a sheriff's jury might find the amount of compensation due. The deceased woman after having eaten some cocoanut felt unwell and consulted the defendant, who gave her a bottle of medicine. Immediately after she had taken some of it she was seized with severe pain, and the defendant, who was summoned to her house, endeavoured in vain to relieve her by means of a stomach pump. He also, before leaving the house, took the bottle of medicine referred to from a shelf, emptied part of its contents down a sink, and filled it up with water. Another medical man who was called in found the woman dead and diagnosed the case as one of strychnine poisoning. The defendant, when visited by the police (after the patient had died on the same night that she had been taken ill), expressed himself as prepared to certify the cause of death to have been ptomaine poisoning and collapse after three days' illness. In explanation to the other medical man he admitted having given strychnine, which had been found to be present in the bottle, and explained that he had done so because the deceased was suffering from a weak heart. After hearing evidence and a discussion as to the defendant's means, the Sheriff's jury assessed the damages at £300. In comment it must be said that defendant by his own admitted conduct in the case considerably increased the risk in which the death of his patient involved him. To tamper with the bottle which he gave her and to make inaccurate statements to the police were two of the most improper and dangerous things that he could have done. The matter appears, however, to have been concluded by the civil proceedings referred to above.

MEDICAL SCHOOL FOR INDIAN WOMEN.—The annual meeting of the North Indian School of Medicine for Native Christian Women at Ludhiana was held on June 7th in the Connaught Rooms, Freemasons' Hall, E.C., Colonel G. Gordon Young (a former Commissioner in the Punjab) presiding. Amongst the speakers were Dr. Edith M. Brown, the founder of the school; Miss L. M. Hill, the secretary; the Rev. Alexander Francis; and Dr. D. N. Chatterjee. The school was founded in 1894 and has now passed beyond the experimental stage. There is a well-equipped hospital attached to it, at which 24,483 out-patients and 1349 in-patients were treated last year. Here women are trained to work as practitioners and nurses amongst their own people, and, in addition to this, an important missionary work is carried on. The board requires two additional medical officers and two hospital sisters; funds also are urgently needed.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

The City of Manchester.—A report which relates to the health and in no small degree the social conditions of a school population of some 120,000 is a document of almost national importance, and we propose therefore to review it somewhat in detail.

Procedure as to Notifiable Infectious Diseases.

In the first place, the school work in Manchester is quite separate and distinct administratively from that of public health, and we may begin by considering the arrangements made for the co-relation of the public health service, the senior branch, with its very juvenile sister branch, the school medical service. These two services must clearly work in absolute harmony if maximum efficiency is to be maintained and if there is to be no overlapping and waste of effort. In dealing with cases of notifiable infectious diseases in the homes of school children the medical officer of health promptly notifies not only to the education authority but also to the schools immediately concerned, while conversely the school medical officers who investigate outbreaks of notifiable infectious disease in the schools duly notify to the medical officer of health the occurrence of missed cases and cases excluded from the schools on suspicion, and this officer follows up such cases in their homes. In cases of diphtheria or suspected diphtheria in the schools swabs are taken by the school medical officers and forwarded to the medical officer of health.

Procedure with Reference to Non-Notifiable Disease.

Here use is quite properly made of the school attendance officers who on discovering the existence of cases of measles, whooping-cough, and the like, notify them to the medical officer of health and deliver to the parents the exclusion-from-school forms which are supplied from the health officer, at the same time notifying the schools of such exclusion. This seems to us to be a very proper use to make of the school attendance officers, and it would be well if more were done in this direction elsewhere. The disinfection of the schools is carried out by the school authority as occasion arises, and it is of interest to note that the time of one assistant school medical officer is almost entirely taken up in dealing with infectious diseases.

The Instruction of Teachers in the Signs and Symptoms of Infectious Diseases.

The assistant school medical officers when visiting the schools in connexion with infectious diseases take the opportunity of educating the teachers in the manifestations of the several communicable maladies, and in addition to this object lesson it is the custom for them to deliver courses of lectures on hygiene to the pupil teachers. During 1909 some 228 teachers attended these lectures.

The Inspectorial Staff.

The school medical officer's staff consists, exclusive of himself, of four male and one female qualified assistants, together with six nurses. Each of the five assistants who carry out the routine inspectorial work is provided with a nurse, who takes charge of the instruments and who is present to assist in all the examinations. The sixth nurse is available for visiting the homes and for emergency work.

Attendance of Parents at the Examinations.

It is found by experience that there is considerable variation as regards the attendance of parents; sometimes as many as 90 per cent. attend, at others only 30 per cent. Their presence is, of course, found useful in the case of the younger children, but as regards those over 13 the necessary information can generally be procured from the child, although the mother's presence is welcome in connexion with any question of treatment which may arise.

The Following up of the Defective Children.

After the issue to the parent of the preliminary notice, which is on a white card and couched in plain non-technical terms, a variety of methods are adopted. The slight ailments are not further followed up, but, as regards more serious conditions, some are recorded on sheets and sent to the principal teacher who is asked to exercise his influence to obtain treatment and to report the result by a definite date, others are placed on various forms and entrusted to the nurse for visit and report. After the lapse of a reasonable time, if the parent has taken no proper steps, a second notice in the form of a green card is despatched to the parent either through the nurse or through the teacher, and failure to attend to this shortly results in the delivery of a third or warning notice on a red card, which is accompanied by a copy of the appropriate sections of the Children Act, 1908. When the child is verminous or filthy the legal 24 hours' notice is served by the attendance officer, and failure to act upon this is followed by the removal of the child from school and cleansing at the municipal cleansing station, which, by the way, was only available towards the end of 1909. As a matter of fact, however, the bulk of the cases are dealt with by the parents on the receipt of the notice. Cases other than these are asked to attend at the education offices where the parents are interviewed by the school medical officer, when the consequences of further neglect are explained, as they are summoned before the rota dealing with the school at which the child attends and official prosecution may result. As an example of what the rota is able to bring about, it is recorded that of 81 cases brought before it 60 received attention, 4 had left the district, and 17 are being followed up. Each of the steps above referred to is followed by a visit from a medical man or nurse, so as to ensure that no case receives an unnecessary notice, and in consequence of the several steps taken it has been found that of all the cases actually followed up somewhere about 94 per cent. have received treatment.

Methods and Institutions Available for Treatment of Defects.

No treatment is undertaken by the education authority, the parents or guardians being advised to obtain treatment either through a medical practitioner or at one or other of the hospitals. There are in Manchester many institutions at which relief can be obtained, and amongst them are two eye hospitals, a dental hospital, a hospital for diseases of the throat and nose, a hospital for diseases of the throat and chest, a hospital for the treatment of skin diseases, two general hospitals or infirmaries, a general children's hospital, and two hospitals for women and children, as well as a number of dispensaries at which treatment can be procured for an almost nominal fee. In addition there are available numerous charitable organisations as well as the Poor-law medical service. On the whole Dr. A. Brown Ritchie, the school medical officer, is of opinion that except as regards dental work Manchester is in the happy position of possessing ample provision for the treatment of the defects discovered. It must, however, be pointed out that although medical treatment is not provided by the education authority, spectacles are furnished for children who have been duly examined and for whom glasses have been prescribed, and during 1909 there were 318 pairs supplied. But these glasses are only provided to those who apply for assistance, in which circumstances the parents pay, if they can, the whole or part of the cost; otherwise they are provided free. The total cost of the spectacles supplied during the year was £23 1*s.* 9*d.*, and the average cost was 1*s.* 5·4*d.* per pair.

The Provision of Meals for Necessitous Children.

It is difficult to separate this provision from treatment, although it is not, of course, officially so regarded. As a general rule the parents take the initiative by an application to have their children fed, and after an investigation into the home circumstances the applications are dealt with according to the average income per head in the home after deduction of the weekly rent. Altogether there were 1783 applications for free meals made during 1909, and of this number 1492 were fed.

Method adopted for dealing with Physically and Mentally Defective Children.

The blind and deaf, as well as the mentally and physically unfit and the epileptic, are examined by the school medical officer and are referred respectively to residential or day schools. The physically defective are sent to a residential school for cripples; the mentally defective are either sent to one of the four special schools carried on within the area, or to the Lancashire and Cheshire homes at Sandelbridge, or they are excluded from the schools as being of too low a grade for either of the above. Epileptic children are accommodated at a residential colony.

The Incidence of Infectious Disease Prior to, and During, School Life.

Some interesting facts have been elicited by one of the assistant school medical officers as to previous incidence of certain infectious diseases, a study having been made of 3000 children, 1500 "fives," and 1500 "thirteens," at both of which ages the inspection has embraced the previous history. Amongst the children at 5 years of age it was found that 70·3 per cent. had already had measles, 43·7 per cent. whooping-cough, and 8 per cent. scarlet fever, facts which are of considerable importance in relation to the influence which schools may be regarded as exercising in the spread of the diseases in question. With respect to scarlet fever alone it was found that the percentage which had been infected at 13 years of age was 20 per cent., as compared with 8 per cent. at 5, as stated above. The figures for Manchester are then taken for the years 1894–1908, inclusive, and it is found that 10,226 cases of scarlet fever, with a fatality rate of 10·7 per cent., occurred amongst children under 5, while for children aged between 5 and 15 there were 19,752 cases, with a fatality rate of 2·5 per cent.—i.e., the average attack-rate upon children below 5 is a little above 2000 per annum, while upon the children from 5 to 15 just below 2000. It is stated that the maximum increase in the number of cases is during the third year of life—i.e., before the commencement of school life. The *rate* of increase then rapidly decreases until the greatest number occurs in the sixth year, when the annual number then begins to steadily decrease. It is contended that these figures fail to support the view that school life increases the frequency of infection, since the aggregation being constant throughout the ten years of schooling the rate of infection markedly decreases after the second year of school attendance. It is, no doubt, difficult to ascertain precisely what amount of infective disease is due to school life, but it does not, of course, follow that because the young children infected were not attending school their scarlet fever was entirely unconnected with the school. So many, perhaps the majority, of the actual cases of scarlet fever escape recognition that in a family some members of whom attend school and others do not, it is difficult to ascertain the source of the disease. In the view of the medical officer who has made these interesting observations, a joint investigation by the medical officer of health and the school medical officer will show that a very large proportion of the cases have had "no direct connexion with the school at all, any more than the fact that they have all been drinking tea proves that the tea is the cause of their illness." This seems to us somewhat to strain the real position, since aggregation is recognised as being a potent cause of infection, whereas there is no evidence whatever that the disease can possibly be spread by tea. The major factor in the spread of scarlet fever may possibly be age proclivity, but even if this be so, school influence may be a not unimportant factor. The fact that during 1909 out of 2259 cases of scarlet fever which occurred only 19 were actually discovered by the medical officers in the schools may in itself suggest how many cases may be overlooked. It would be an instructive piece of work if an inquiry were made in Manchester on the same lines as was made by Sir Shirley Murphy for London into the effect of the long vacation upon the behaviour of such diseases as scarlet fever and diphtheria.

Physical Condition and Mental Progress.

The relation of success in life to physical fitness is well brought out by an investigation into the condition of children of 13 years of age, at which age a child should normally be in Standard VII. The investigation went to show that the average 13 years old child who had not then got beyond Standard V. was shorter and lighter than his rival who had reached the higher standards.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8474 births and 3718 deaths were registered during the week ending June 11th. The annual rate of mortality in these towns, which had declined in the four preceding weeks from 13·8 to 11·8 per 1000, further declined to 11·4 in the week under notice, and was considerably lower than in any previous week of this year. During the first ten weeks of the current quarter the annual death-rate in these towns averaged only 13·2 per 1000, and in London during the same period it was so low as 12·7. The lowest recorded annual rates of mortality during last week in these 77 towns were 2·5 in Reading, 4·3 in King's Norton, 4·8 in Hornsey, and 5·7 in East Ham; the rates in the other of the large towns ranged upwards, however, to 17·2 in Stoke-on-Trent, 17·5 in Preston, 18·0 in Liverpool, and 21·6 in Merthyr Tydfil. In London the recorded death-rate last week was so low as 10·5 per 1000. The 3718 deaths registered last week in the 77 towns showed a further decline of 118 from the low numbers in recent weeks, and included 381 which were referred to the principal epidemic diseases, against 425 and 369 in the two preceding weeks; of these 381 deaths, 149 resulted from measles, 120 from whooping-cough, 49 from diarrhœa, 26 from diphtheria, 20 from scarlet fever, and 17 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·2 per 1000, against 1·3 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Leicester, Plymouth, Norwich, Burnley, or in 14 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Liverpool and in Oldham, 3·0 in Blackburn, 3·2 in Stoke-on-Trent, and 3·3 in Barrow-in-Furness. The fatal cases of measles in the 77 towns, which had been 157 and 141 in the two preceding weeks, rose again to 149 last week, and caused annual rates equal to 1·9 in Burton-on-Trent, 2·0 in Merthyr Tydfil, 2·3 in Blackburn, and 2·5 in Barrow-in-Furness. The 120 deaths from whooping-cough showed a further slight decline from the numbers in recent weeks; the highest annual rates from this disease last week were 1·4 in Grimsby and in Wallasey, 1·5 in Bootle, and 1·6 in St. Helens. The deaths attributed to diarrhœa, which had been 49 and 46 in the two previous weeks, rose again last week to 49. The 26 fatal cases of diphtheria, were within one of the number in the previous week, and included 3 in Stoke-on-Trent, and 2 each in Birmingham, Liverpool, Preston, and Bradford. Of the 20 deaths from scarlet fever, 4 occurred in Stoke-on-Trent, and 2 both in Bolton and in Sheffield. The deaths referred to enteric fever in the 77 towns, which had been 17 and 10 in the two preceding weeks, were again 17 last week, and included 3 in London and 2 in Liverpool. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital further declined last week to 1401, and were fewer than at any time during the last six months; 181 new cases of this disease were admitted to these hospitals during last week, against 174 and 203 in the two preceding weeks. Of the 983 deaths registered in London during last week only 137 were referred to pneumonia and other diseases of the respiratory system, and were 29 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 29, or 0·8 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Sheffield, Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Stoke-on-Trent, Leicester, and in 50 other smaller towns; the 29 uncertified causes of death in the 77 towns last week included 4 in Birmingham, 3 in Liverpool and in Preston, and 2 each in Manchester, Burnley, Gateshead, and Burton-on-Trent.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 970 births and 514 deaths were registered during the week ending June 11th. The annual rate of mortality in these towns, which had been equal to 14·0 and 14·3 per 1000 in the two preceding weeks, was 14·2 in the week under notice. During the first ten weeks of the current quarter the death-rate in these towns averaged 15·9 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·0 and 10·6 in Aberdeen and in Paisley,

to 19·3 in Dundee and 19·6 in Perth. The 514 deaths from all causes in the eight towns during last week showed a decline of 3 from the number in the previous week, and included 59 which were referred to the principal epidemic diseases, against numbers declining from 87 to 50 in the five preceding weeks; of these 59 deaths, 22 resulted from diarrhœa, 13 from measles, 9 from whooping-cough, and 5 each from scarlet fever, diphtheria, and "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·6 per 1000, against 1·2 in the 76 English towns, and was 4·2 in Perth and 4 3 in Dundee. The 22 deaths attributed to diarrhœa last week in the eight Scotch towns showed an increase of 7 upon the number in the previous week, and included 15 in Glasgow, 3 in Dundee, and 2 in Perth. The fatal cases of measles in the eight towns, which had declined from 52 to 20 in the five preceding weeks, further fell last week to 13, of which 7 occurred in Dundee and 5 in Glasgow. The 9 fatal cases of whooping-cough showed a further slight increase upon recent weekly numbers, and included 5 in Glasgow and 3 in Dundee. All the 5 deaths from scarlet fever, and 4 of the 5 fatal cases of diphtheria, were returned in Glasgow. The 5 deaths referred to "fever" showed an increase upon recent weekly numbers, and included 4 fatal cases of typhus registered in Leith. The deaths referred to diseases of the respiratory system in the eight towns, which had been 98, 80, and 82 in the three preceding weeks, further declined last week to 67, and were 13 below the number returned in the corresponding week of last year. The causes of 17, or 3·3 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 691 births and 393 deaths were registered during the week ending June 11th. The mean annual rate of mortality in these towns, which had been equal to 21·1 and 18·0 per 1000 in the two preceding weeks, further declined to 17·8 in the week under notice. During the first ten weeks of the current quarter the annual death-rate in these Irish towns averaged 20·9 per 1000, whereas the mean rate during the same period did not exceed 13·2 in the 77 largest English towns and 15·9 in the eight principal Scotch towns. The annual death-rate during last week was equal to 16·4 in Dublin, 19·7 in Belfast, 19·9 in Cork, 9·6 in Londonderry, 16·4 in Limerick, and 29·2 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 16·7 per 1000. The 393 deaths from all causes in the 22 town districts last week showed a further slight decline from the numbers in recent weeks, and included 55 which were referred to the principal epidemic diseases, against 59, 50, and 58 in the three preceding weeks; these 55 deaths in the Irish towns were equal to an annual rate of 2·6 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·2, and in the eight Scotch towns 1·6 per 1000. The 55 deaths from these epidemic diseases in the Irish towns last week included 40 from measles, 7 from diarrhœa, 6 from whooping-cough, and 1 each from diphtheria and enteric fever, but not one either from scarlet fever or small-pox. The fatal cases of measles in the 22 town districts, which had been 33 and 39 in the two preceding weeks, further rose last week to 40, of which 38 occurred in Belfast. The 7 deaths attributed to diarrhœa showed a slight increase, and included 3 in Dublin. Of the 6 fatal cases of whooping-cough, 5 occurred in Belfast; and the death each from diphtheria and enteric fever were also there recorded. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 90 and 75 in the two preceding weeks, were 78 in the week under notice. The causes of 17, or 4·3 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while in the eight principal Scotch towns it was equal to 3·3 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Surgeons have been promoted to the rank of Staff-Surgeon in His Majesty's Fleet (dated June 9th, 1910):—Charles Arthur Gayer Phipps, Stanley Samuel Howard Shannon, and Reginald Lewis Jones.

The following appointments are notified:—Fleet-Surgeons: P. H. Boyden to the *Tamar*, additional, for Wei-Hai-Wei Sick Quarters, and J. F. Hall to the *Fisgard*. Staff-Surgeons: T. B. Shaw to the *Victory*, additional, for temporary service at Haslar Hospital; and A. X. Lavertine to the *Sutlej*. Surgeons: C. G. Sprague to the *Inflexible* and T. C. Patterson to the *Pembroke*, additional, lent Chatham Hospital, temporarily.

SUBMARINES AND EYESIGHT.

In the House of Commons on June 14th, in reply to a question by Mr. Gretton (on behalf of Lord C. Beresford), Mr. McKenna said there was no evidence that officers and men had their eye-sight affected in consequence of serving in submarines.

ROYAL ARMY MEDICAL CORPS.

Colonel S. C. B. Robinson, principal medical officer of the Fifth (Mhow) Division, Southern Army, India, has been granted four months' leave. Colonel E. Butt, principal medical officer of the Presidency and Assam Brigades, has joined at Darjeeling from Calcutta. Lieutenant-Colonel H. W. Austin has been transferred from the Southern to the Aldershot Command. Lieutenant-Colonel P. C. H. Gordon, on return from a tour of foreign service in Burma, has been appointed to command the military hospital at Bulford, Salisbury Plain. Lieutenant-Colonel S. Townsend, from Dover, has been posted to Canterbury. Major J. R. M. McMunn, on return from South Africa, has been posted to the Southern Command and appointed Registrar and Adjutant to the Royal Victoria Hospital at Netley. Major J. C. Jameson has arrived home from Egypt on leave. Major G. T. K. Maurice, from Muttra, has been transferred to the home establishment and posted to Bulford Camp, Salisbury Plain. Major A. E. Milner has joined the Southern Command from London District. Major B. H. Scott, from Edinburgh, has been appointed Deputy Assistant Director-General at the War Office, vice Major H. J. M. Buist, D.S.O., whose tenure of appointment has expired. Major J. D. Alexander has arrived home on leave from India. Captain H. Gibson, from Cosham, has joined at Poona. Captain E. W. Powell and Captain J. S. Dunn have arrived home from India and Captain E. Gibbon from Egypt on leave. Captain F. J. C. Heffernan has been transferred from Dinapore to Lucknow. Captain D. E. Curme, from Aldershot, has been posted to Ewshot. Captain N. J. C. Rutherford, from Canterbury, has joined at Harrismith. Captain E. E. Ellery has been appointed to Cairo. Captain R. J. C. Thompson has been seconded for service with the Egyptian Army. Captain H. H. Norman and Captain H. O. M. Beadnell have arrived home on leave from India. Captain C. T. Edmunds has embarked for India. Lieutenant S. Field, on completion of a tour of special service in Somaliland, has been posted to Chatham. Lieutenant F. H. M. Chapman has been transferred from Lebong to Darjeeling for duty at the station hospital during the summer months. Lieutenant J. C. L. Hingston, from Edinburgh, has joined at Cosham. Lieutenant M. J. Williamson, from Bulford, has been appointed to the medical charge of the artillery camp at Larkhill, Salisbury Plain.

DEATHS IN THE SERVICES.

Surgeon-Major-General John George Faught, A.M.S. (retired), Honorary Surgeon to the King, at Southsea on June 12th, in his seventy-eighth year. He entered the service as assistant surgeon in 1855, became surgeon in 1867, surgeon-major in 1873, and surgeon-major-general in 1890, and retired in 1892. He was employed as sanitary officer at Cape Coast Castle during the Ashanti war in 1874 (medal), served in the Afghan war, 1878–80 (medal), in the Egyptian war, 1882 (medal and Khedive's star), and with the Bechuanaland expedition under Sir Charles Warren, 1884–85, as principal medical officer. He was also principal medical officer in the operations in Zululand in 1888.

Lieutenant-Colonel Hubert Rothwell Greene, R.A.M.C.

(retired), on June 4th, at Dunstable, in his seventieth year. He entered the service as assistant surgeon in 1863, becoming surgeon in 1873 and surgeon-major in 1876. He retired with the honorary rank of surgeon-lieutenant-colonel in 1886. He held at one time the post of First English Director of Egyptian Sanitary Administration and served in the Afghan War of 1878–80 (medal), in the Egyptian Expedition of 1884 (mentioned in despatches), and in the Wady Halfa Hospital during the Soudan Expedition of 1884–85.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions of officers of the Indian Medical Service:—To be Colonel: Lieutenant-Colonel Courtenay Clarke Manifold (dated March 29th, 1910). Lieutenant to be Captain: Harold Mundee Inman (dated Feb. 2nd, 1910).

Lieutenant-Colonel W. D. Sutherland, Civil Surgeon of Sangor, Central Provinces, has been appointed to the medical charge of Damoh District. Lieutenant-Colonel J. W. Rodgers has been appointed to officiate as Principal Medical Officer of the Fifth (Mhow) Division, Southern Army, India, during the absence on leave of Colonel S. C. B. Robinson. Lieutenant-Colonel P. D. Paul has been permitted to retire from the service from May 17th. Lieutenant-Colonel F. C. Clarkson, Bombay, has arrived home on leave. Major P. K. Chitale, Civil Surgeon of Damoh, Central Provinces, has been granted three months' privilege leave. Major J. G. P. Murray, Bombay, has had his leave extended. Captain H. W. Pierpoint has been appointed to officiate as Civil Surgeon of the Chanda District. Captain T. H. Gloster and Captain E. C. C. Maunsell have arrived home on leave from India. Captain J. MacG. Skinner has been posted for duty under the Home Department of the Government of India to the Madras Presidency, and Captain G. F. Morison to Eastern Bengal and Assam. Captain C. A. Sprawson has been appointed for duty in the United Provinces. Captain N. S. Wells, Officiating Civil Surgeon of Budaun, United Provinces, has been granted special leave for six months out of India. Captain W. J. Frazer has been posted temporarily to the Central Provinces for duty. Captain E. C. Taylor has been appointed Civil Surgeon of Miranshah. Captain J. Anderson has arrived home on leave. Captain G. C. L. Kerans has been appointed Specialist in Ophthalmology to the Eighth (Lucknow) Division. Captain W. J. Collison has had his leave extended by four months on medical certificate. Lieutenant A. M. Dukes, in charge of the Brigade Laboratory at Shillong, has been appointed a Specialist in the Prevention of Disease.

INDIAN MEDICAL SERVICE EXAMINATION.

An examination for not less than 15 commissions in the Indian Medical Service will be held in London on July 25th and following days. Full particulars can be obtained on application to the Military Secretary, India Office, S.W.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st Highland Field Ambulance: The undermentioned officers to be Majors (dated April 1st, 1908):—Captain Alexander Ogston and Captain Thomas Fraser.

2nd Highland Field Ambulance: Captain Francis Kelly to be Major (dated April 1st, 1908).

3rd Highland Field Ambulance: Captain William E. Foggie to be Major (dated April 1st, 1908).

1st Scottish General Hospital: Major Arthur Hugh Lister, from 2nd Highland Field Ambulance, Royal Army Medical Corps, to be Major, whose services will be available on mobilisation (dated Dec. 1st, 1909). Major Arthur H. Lister to be Lieutenant-Colonel (dated May 22nd, 1910).

For attachment to Units other than Medical Units.—Lieutenant John A. Gibb to be Captain (dated Dec. 2nd, 1909). Richard Vernon Favell to be Lieutenant (dated April 15th, 1910).

Attached to Units other than Medical Units.—Lieutenant John W. T. Walker to be Captain (dated April 1st, 1908). Lieutenant Robert V. G. Monckton resigns his commission (dated May 9th, 1910).

THE SANITARY SERVICE OF THE TERRITORIAL FORCE.

General Sir Harry N. D. Prendergast, V.C., presided at the Imperial Institute on June 8th over a meeting convened for the purpose of stimulating interest in the sanitary service of the Territorial Force. Lieutenant-Colonel C. H. Melville, R.A.M.C., professor of hygiene at the Royal Army Medical College, said that, unlike the soldiers of the Territorial Force, the sanitary department would be allowed no breathing interval between the call for service and the first experience of war. From the first moment that the army was mobilised their work would begin. If they had not learnt their work in peace time they would have to learn it during the period of waiting for the enemy, and the price of that lesson would be so many Territorial privates in hospital and so many under the sod, therefore so many less ready to meet an invader. It was therefore their duty in peace time to study the conditions that they would have to face in war.

TERRITORIAL NURSING.

On June 11th, at the Japan-British Exhibition, Lady Helen Munro Ferguson, in the absence of the Duchess of Montrose, presided over a meeting of the Women's Congress, at which a discussion took place on the subject of Red Cross and General Nursing. Miss Haldane said that it was of little advantage to have 300,000 or a much greater number of men to defend our shores if we were not prepared to care for them in sickness. Unless on mobilisation an army was constantly being relieved of its sick and wounded, advance was made almost impossible. 23 hospitals, each having 520 beds, had been organised all over the country from Aberdeen to Brighton. These hospitals were not buildings specially erected, but public buildings which were ear-marked, so to speak, as hospitals. The *personnel* was definitely fixed upon. The Territorial Nursing Service was managed by a Matron-in-Chief at headquarters and principal matrons at each centre, along with an advisory council, which met in the War Office, or local committees. The Voluntary Aid Detachments were springing up everywhere, with their commandants, medical and other officers, all acting under a county director. The whole work, though done for the War Office, was entirely undertaken by the British Red Cross Society, though the St. John and St. Andrew's Ambulance Societies had the first teaching work imposed upon them. The women were not only certificated in first-aid, but also in nursing, cooking, disinfecting wards, and so forth. Field days were being arranged, and competitions between rival detachments were in prospect. It was a peace movement, and all these preparations were useful in civil life. Miss McCaul said that one reason why the Japanese Red Cross Society was so far in advance of other Red Cross societies was that it had been made to take a part in the daily life of the country.

RED CROSS SOCIETY.

The Marchioness of Winchester presided at the first annual meeting of the Hampshire county branch of the Red Cross Society which was held at the Castle, Winchester, on June 4th. Owing to the undesirability of asking for separate subscriptions for both the St. John Ambulance Association and the Red Cross Society, it was suggested that one subscription should be made for the two institutions, but the suggestion was not adopted. The Marquis of Winchester said that it might be possible to obtain some system of obtaining St. John certificates which could be recognised by the War Office and which would fulfil the necessary requirements of the Red Cross Association. Mr. Lockhart E. W. Stephens suggested that the War Office should detail some officers of the Royal Army Medical Corps to take one or more divisions for the purpose of informing the commandants exactly what to do when mobilisation takes place. He thought it was the duty of a military medical officer rather than that of a civilian practitioner, and it was not fair to ask the latter to learn the Royal Army Medical Corps manual in addition to his private work.

BALNEOLOGY AT BUXTON.—A meeting of the members of the Balneological and Climatological Section of the Royal Society of Medicine took place recently at Buxton under the presidency of Dr. Leonard Williams. The Fellows and guests, who were received by the president and members of the Buxton Medical Society, visited the Devonshire Hospital, where some interesting cases, among others, of rheumatic arthritis and gout were shown. They then proceeded to inspect the Buxton Baths. In the evening a dinner, followed by a smoking concert, was held at the Palace Hotel, and on Sunday the Fellows and guests visited places of interest in the vicinity of Buxton. From every point of view the meeting was a successful one.

Correspondence.

"Audi alteram partem."

THE WORK OF DR. CARLOS J. FINLAY IN RESPECT OF INSECT-BORNE DISEASE.

To the Editor of THE LANCET.

SIR,—I was very much surprised on reading Professor Osler's address before the London School of Tropical Medicine to find that Dr. Carlos J. Finlay's name had been entirely left out of all consideration in the discussion of the new discoveries concerning the transmission of diseases by blood-sucking insects.

There has been a tendency in the United States to slight the influence of Dr. Finlay's work in the foundation of these new doctrines. Dr. Finlay, with his rather pugnacious logic, of Scotch origin, was the first to combat the old prejudices and to stem the tide of ridicule and argument that was brought in their support. He also participates, on equal terms, I think, in the great glory of the discovery, thereby making it, in that much, less of an exclusive American triumph. For the same reason it has been also the tendency to forget at times the name of Dr. Agramonte, a Cuban, who was a member of the Commission of Officers of the American Army, who so brilliantly made the final and conclusive demonstrations in the matter of yellow fever.

For my part I do not hesitate in declaring that the founders of the doctrine upon which the great series of triumphs in tropical medicine is based are Dr. Manson and Dr. Finlay, a statement which does not detract in the least from the equal merit of the great experimenters who followed them, Smith and Kilbourne, Ross, Grassi, the American Army Commissioners, Koch, and other original investigators and discoverers. Back of these there is absolutely nothing. There is no difference whatever between the popular credence of the negroes of Africa and the Italian peasants, who believed that fevers were produced by the bites of mosquitoes, and the writings of Not, Beaupertuy, and King. He who follows these authors chronologically may imagine from the outward show of scientific apparel that he is progressing in a process of evolution of a great doctrine, but he soon finds that he is following a vicious circle that brings him back to the negroes of Africa, and to nothing practical. It may appear for a moment that Dr. Beaupertuy strikes out of the circle, and that he brings forward, a fact, when he speaks of the mosquito *à pattes rayés de blanc*, the *zancudo bobo*. This mention, frequently repeated, is made to serve as proof that Dr. Beaupertuy had fixed accurately upon the actual transmitter of yellow fever, the *Stegomyia calopus*, characterised by white ringed joints in the six legs. But this is not true. In the first place, the *zancudo bobo* is not the *stegomyia*. *Bobo* means silly, dull, and the *stegomyia* is one of the most alert of mosquitoes. The term *mosquito bobo* is applied by us to the *Culex sollicitans*, also a striped mosquito that breeds along the seashore in salt and brackish water, that invades human habitations in enormous swarms, and that might have fitted into Beaupertuy's theory of the origin of yellow fever in decomposing swamp plants from whence, he believed, the infection was brought by mosquitoes to man. This insect is called *bobo* because it is the dullest of our mosquitoes, being easily killed by gentle application of the hand when the insect is in the act of feeding. To kill the *stegomyia* or the *pipiens*, under the same circumstances you have to give a quick slap. The twisting of Dr. Beaupertuy's statement into service consists in ignoring that he singles out this particular mosquito precisely to say that it is *not* the producer of yellow and malarial fevers. "*Elle est la plus commune et sa piqûre est inoffensive comparativement à celle des autres espèces.*"

I wish to leave on record what Dr. Finlay said and did precisely at the time that the American Commissioners were about to commence their epoch-making investigation. The African negroes, who designate the mosquito by the same name that they apply to their fevers, the Italian peasants, and Drs. Not, Beaupertuy, and King were equally removed from the possibility of doing what Dr. Finlay did. This extraordinary man had studied very carefully the habits and geographical distribution of the *stegomyia*, or *culex mosquito*, Desv., as it was then called. He had studied the anatomy of the insect, he had determined its manner of feeding and breeding, he had studied its behaviour under varying influences of temperature and atmospheric pressure, and upon these facts, discovered and analysed by him, he explained with mathematical precision, as we do now, all the phenomena of the epidemiology of yellow fever.

Dr. Finlay met the American Commission with this mosquito in his hands. During 20 years he had been breeding it in test-tubes and jars, in the manner which was afterwards employed by Ross, and Grassi and others, and had been subjecting it to a series of most ingenious experiments, all carefully recorded. In presenting his mosquitoes he said:—

> If you take this mosquito and apply it to a yellow fever patient and allow it to feed on his blood you will have an infected insect, capable of producing immunity (here he was mistaken) if you apply it within two or three days after the bite, to a well man; and capable of producing a severe form of the disease if you apply it later.

This statement he had made in writing in 1891, as follows:—

> By the term "contaminated mosquitoes" I understand such as have stung a yellow fever patient during the first six days of the disease, and it is my belief that whereas one or two stings from mosquitoes recently contaminated may either occasion in susceptible persons a mild attack, or simply confer immunity without any pathogenic manifestations, a severe attack would result from a greater number of such stings, and the same might also occur in consequence of a single sting from a mosquito that should have been fed exclusively on sweet juices during several days or weeks, after its contamination, before it is allowed to sting another non-immune subject. (See *Revista de Medicina Tropical*, Havana, 1903, vol. iv., p. 136).

Now, these insects, *actually* received from the hands of Dr. Finlay, were *the ones* employed by the American Commission to bring about the demonstration of the new doctrine. This presentation of his mosquitoes to the United States Army Commission was made in 1900. In 1899 he had written the following statements, which are taken from his address "On the Methods of Stamping Out Yellow Fever, suggested since 1899," read before the Conference of State and Provincial Boards of Health of North America in October, 1902:—

> I expressed my ideas on these points in a paper which I contributed to the World's Congress Auxiliary of Chicago in 1893, "On Etiological Factors Concerned in the Propagation of Yellow Fever"; and also in another paper which I wrote for the Eighth International Congress of Hygiene and Demography held at Budapest in 1894 (see Comptes Rendus of the latter, Vol. II., p. 702), the conclusion of which was as follows: "The special measures which might be adopted against the propagation of yellow fever through mosquitoes must be left to the criterion of those who accept my theory, but the principal indications must be: 1. To prevent those insects from stinging yellow fever patients. 2. To destroy as far as possible the mosquitoes which have been infected, bearing in mind that in close spaces a temperature of 50° C. is sufficient for that purpose. 3. Finally, to consider any place unsafe so long as the last mosquitoes which have stung yellow fever patients may be alive in it; from thirty-five to forty days being the term of their existence under the most favourable circumstances."
>
> Despairing of ever obtaining a fair investigation of my theory, such as I had repeatedly solicited, but at the same time encouraged by the results which I had obtained even with my imperfect methods, it now occurred to me that I might be more successful in persuading my colleagues to try a plan for stamping out yellow fever which I had formulated in my own mind. I therefore took the opportunity of Koch's suggestions concerning malaria in 1898 to insert an outline of my plan as the conclusion of a paper which I read before the Academy of Sciences in November of the same year. I then translated this paper into English, with a more detailed account of my plan, and showed it to several officers of the American Army and Navy stationed in Havana in December of 1898. Finally, this same paper was published in the *New York Medical Record* of May 27th, 1899. I must ask you, gentlemen, to let me quote the last paragraphs of that publication. These were my words:—
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> "Why should not the houses in yellow fever countries be provided with mosquito-blinds, such as are used in the United States as a mere matter of comfort, while here it might be a question of life or death? The mosquito larvæ might be destroyed in swamps, pools, privies, sinks, street sewers, and other stagnant waters in which they are bred, by a methodical use of potassium permanganate or other such substances, in order to lessen the abundance of mosquitoes; but the most essential point must be to prevent those insects from reaching yellow fever patients, and to secure a proper disinfection of all suspicious discharges, in order to forestall the contamination of those insects. Well-ventilated hospitals should be built upon high grounds, with no stagnant waters nor marshes in their vicinity; doors and windows protected by mosquito blinds; a good system of drainage and sewerage; and facilities for destroying any mosquitoes or larvæ which might be found within the building. Only the upper storeys should be occupied by the sick, and none but yellow fever patients and such malaria patients as are considered immune against yellow fever should be admitted. The examination for admission might be carried out in a separate building, and a separate department devoted to the suspicious cases under observation.
>
> "With such hospitals at hand, and an efficient board of health that would see to the proper arrangements for patients who could be left at

their homes, and general sanitary improvements within and around the principal cities, there can be no doubt that yellow fever might be stamped out from Cuba and Porto Rico, and malaria reduced to a minimum. It would then be the business of the port and quarantine officers to prevent the introduction of fresh germs."

Every word of that prophecy has now come true, and I appeal to Major Gorgas himself to say whether in the accomplishment of his admirable work, which has now culminated in the unquestionable stamping out of yellow fever from Havana, he has resorted to any measures which do not come within the scope of the programme set down by me in 1899. If this be so, am I not right in assuming that, if my plan had been carried into effect by the military government at that time, Cuba might have been rid of its inveterate enemy, the yellow fever, two years before the arrival of the United States Military Yellow Fever Commission in Cuba? The man who could do it was already here; and you may be sure that if the experiment had been entrusted to Major Gorgas, unconvinced though he was at that time, he would have displayed the same earnestness of purpose and special talents for planning out the best system of attack and defence against the mosquito which he did two years later, with the brilliant results which have earned for him world-wide renown. He would have acquainted himself with the methods which have been most successful in fighting the mosquito pest in the United States—petroleum for killing the larvæ and the pyrethrum fumes for destroying the winged insect. He would have formed his mosquito brigades and his squads for placing mosquito-proof screens upon every door and window of the sick-room, as well as in the yellow fever department of every hospital. As the propagation of the disease would show signs of decreasing, his faith in the method, and consequently in the theory, would have become strengthened, and final success would have been assured. Success obtained in this manner would have been a great loss to science, it is true, since the crucial experiments of the United States Yellow Fever Commission might in that case have been omitted. From the sanitarian's standpoint, however, the result would perhaps have been considered more satisfactory, inasmuch as 400 lives could have been saved in 1899 and 1900.

Now, in appearing before the London School of Tropical Medicine in 1909 to speak on these subjects, I contend that Professor Osler should not have omitted the name of Dr. Finlay, the only man who between 1898 and 1900 could say and do these things. The only man at that time, and in the history of the past, was this great Antillean who, like Alexander Hamilton, combined in his fertile mind the ancestral traits, the power of reasoning well and persistently of the Scotch, together with the lively imagination of the French.

I am, Sir, yours faithfully,

JUAN GUITERAS,
Director of Public Health, Havana, Cuba.

*** It is probable that the theories of Beauperthuy had already been rife amongst the medical men in the West Indies and on the mainland. Beauperthuy and Finlay will stand bracketed together, just as Harrison and Carter do. It is open to everyone to examine the respective writings of both Beauperthuy and Finlay. Both were original thinkers, and both came to the same conclusions, but Beauperthuy formulated his opinions earlier; Finlay coming later expressed his views more clearly and in a way more in conformity with modern thinking.—ED. L.

To the Editor of THE LANCET.

SIR,—The omission of Dr. Finlay's name was a pure inadvertance for which I am very sorry. His work, of course, on the subject, has been all important.

I am, Sir, yours faithfully,

WM. OSLER.

THE REPRESENTATION OF MIDWIVES ON THE CENTRAL MIDWIVES BOARD.

To the Editor of THE LANCET.

SIR,—The Incorporated Midwives' Institute wishes to call the attention of all certified midwives to the Amending Bill of the Midwives Act now before the House of Lords. It is generally recognised that midwives, of whom there are nearly 30,000 on the Roll, are most inadequately represented on the Board that governs them.

It was through the efforts of the Midwives' Institute that any representation of midwives was secured in the Bill of 1902. In spite of much opposition the Institute obtained nomination of a representative (a medical practitioner) to the Central Midwives Board. After six years' experience of the working of the Act and a very large increase in the numbers of the Midwives' Institute and its affiliated associations, it is evident that the time has come to claim more representation of midwives, and the Institute is now asking for two nominees, one of whom shall be a midwife.

The Midwives' Institute is in no way opposed to the principle of Direct Representation, if practicable; but as that would involve the election by ballot of a certified midwife by the 30,000 midwives on the Roll, it hardly seems at present to come within the range of practical politics. The Midwives' Institute therefore appeals to bodies and societies of midwives to coöperate by affiliating with the Midwives' Institute, in order to participate in the nomination and election of a representative on the Central Midwives Board; in this way obtaining direct representation of their members.

The interests of the practising midwives will at present be best secured by such representation through associations united to one centre, and it is greatly hoped that the younger members of the profession will help to consolidate the work of the pioneers. Ultimate success depends on the solidarity of a whole profession united in a common cause—viz., the protection of the lives of mothers and their children, the improvement in the status and training of the midwife being a necessary corollary.

I am, Sir, yours faithfully,

R. P. FYNES-CLINTON,
Secretary, Incorporated Midwives' Institute.
12, Buckingham-street, Strand, W.C., June 10th, 1910.

*** We publish on p. 1699 a leading article upon the whole subject.—ED. L.

TWO CASES OF BLACKWATER FEVER.

To the Editor of THE LANCET.

SIR,—I have read with great interest the description by Major D. G. Marshall, I.M.S., of a case of blackwater fever in THE LANCET of May 14th, p. 1333, and Dr. C. F. Harford's interesting letter upon the subject in THE LANCET of May 28th, p. 1498; and I should like, if I may trespass upon your valuable space, to quote from my small experience two cases that have occurred in my practice during the last six months, which seem to confirm Dr. Harford's views.

An officer of the West African Regiment arrived home on leave at the end of October. He had one slight attack of malaria on the coast, and had been taking quinine sulphate (2½ grain tabloids) upon the regularly intermittent principle ever since. On his voyage home he continued taking quinine till he reached the Islands, but, unfortunately, he followed the usual custom and dropped it then. I examined him the day after his arrival at his father's request, and passed him as quite sound. Two days later he felt ill, and I went to see him. He had mild jaundice and severe backache, some vomiting, and a temperature of 102° F.; there had been no rigors or sweats. So he remained for seven days, the jaundice and temperature diminishing, but the feeling of illness and backache increasing. There were no rigors, but frequent and drenching sweats, especially when he dropped off to sleep, and of such severity that his clothes had to be changed every two or three hours. There were no other physical signs. On the seventh day, at 3.30 P.M., actually as I was taking his blood to examine for malaria, the characteristic shivering began, and the typical paroxysm followed, going through the usual stages and ending about 10.30 P.M. I gave him 10 grains of quinine and followed it by 2½ grains night and morning, and during the rest of his leave he had no more attacks. I found the parasite in the blood.

The second case was a civil servant from Burma who had had several attacks of malaria and two slight attacks of bloody urine, which had lasted only a few hours and which he was told by a doctor in Burma were due to "malaria affecting the kidneys." Like many men in Burma, as opposed to West Africa, he was in the habit of taking quinine in large and irregular doses. He had fever before leaving Burma to come home on leave after three years out there and had hoped to regain his health on the voyage home. However, he felt so ill that instead of breaking his journey on the continent he came round by sea and landed in England on May 14th. On May 15th in despair he took 30 grains of quinine sulphate, as "quinine is no good unless it makes one's head buzz, and that means a big dose." At midnight on the 16th he had a rigor and passed "bloody urine." I saw him about 10.30 A.M. on the 17th; he was anæmic, jaundiced, and sweating, vomiting everything he took, and passing porter-coloured urine. There was no hiccough, but a good deal of headache and mental anxiety, owing to

knowledge of the dangerous nature of his illness. Temperature 102° F.; pulse 84 and good.

Dr. C. W. Daniels of the London School of Tropical Medicine was kind enough to see him with me next day, and out of his vast experience to give his valuable advice. The prognosis in his opinion was extremely favourable, provided that good diuresis could be maintained, because dilution of the urine with an equal quantity of water rendered the mixture almost transparent. I found the parasite in the blood on the 17th (sub-tertian variety), but none on the 18th as is usual. The urine, which gave the usual tests for blood and showed a very heavy deposit upon standing, contained many granular casts, but no red blood corpuscles. No quinine or purgative was given, but 2 ounces of fluid every quarter of an hour. The urine was passed at the rate of 4, 3½, 4, 4½ pints respectively in successive periods of 24 hours' duration, and at the end of 84 hours (3½ days) after the initial rigor showed no chemical trace of blood. The hæmoglobin of the blood on the third day of the illness was about 70 per cent., the lips, gums, and nails were bloodless, and loud hæmic bruits were audible all over the præcordium. To-day (May 31st) he is feeling very well and looks it.

Out of my very limited experience it seems to me that these two cases definitely support Dr. Harford's views: (1) Quinine is essential for malaria and malarial subjects; (2) small regular doses should be used, as in Africa, not large irregular doses, as in Burma; (3) regular daily dosage is better than regularly intermittent dosage; and (4) regular dosage should be continued for some considerable time after arriving in England.

As regards blackwater fever, which seems to be becoming more and more every year a disease with which even the general practitioner may be called upon to deal, it is important to remember: (1) The disease is a hæmolysis and not a hæmorrhage; (2) the great danger is suppression of urine owing to clotting of the blood in the renal tubules; (3) much fluid means much urine and safety; (4) the first 48 hours are the critical ones, in which all depends upon treatment; and (5) alcoholic stimulation is not contra-indicated as in hæmorrhage, and is often imperative.

I am, Sir, yours faithfully,

Fleet, Hants, May 31st, 1910. J. E. FRERE.

"A CASE OF LYMPHATISM."

To the Editor of THE LANCET.

SIR,—In the opening paragraphs of the article published in THE LANCET of May 14th, p. 1347, under this heading, Dr. L. P. Burt and Dr. J. R. Collins describe a condition in which there was noticeable enlargement of the thyroid gland together with tachycardia and dyspnœa. "The thyroid gland formed a large rounded tumour in the neck, larger on the right side than the left. The pulse varied from 100 to 150 per minute. On admission there was great dyspnœa." No attempt is made to furnish any explanation of the rapid supervention of urgent dyspnœa. The account of the necropsy states that there was no evidence of compression of the trachea, and we are left without any explanation of the urgent dyspnœa which called for the operation of partial thyroidectomy.

Passing to consideration of the cause of death, we have the statement that "the heart apparently ceased to beat five to seven minutes after the cessation of respiration," while a little lower down, in commenting upon the mode of death in cases of lymphatism, the following view is expressed: "It seems certain that there is present in these cases of lymphatism a morbid susceptibility to shock, and that a stimulus which in a normal subject would be quite harmless may give rise to a fatal inhibition of the heart."

The authors seemingly conclude that death was due to the effect of chloroform inhalation acting upon a patient subject to a condition of lymphatism, and I would call attention to what seems an important omission in the report of such a case. No mention is made of the length of time during which chloroform narcosis had been maintained prior to the supervention of death. Seeing that their publication had in view the demonstration of a special inability on the part of the subjects of lymphatism to withstand the deleterious effects of chloroform inhalation, it might, I think, have been expected that this point would have been made clear. The authors seemingly hold the opinion that the predisposing cause of death in the case they describe was without doubt a condition of lymphatism, but they have supplied no satisfactory proof that such was in reality the case.

They lay considerable stress upon what they consider an abnormal hypertrophy of the lymphatic tissues contained in the mucous membrane of the alimentary canal and of the mesenteric lymphatic glands. I would venture to ask with what knowledge it is possible to arbitrate between such an hypertrophy as may be looked upon as compatible with a normal state, and such a condition of overgrowth as should be rightly held to constitute evidence of a pathological state.

I am, Sir, yours faithfully,

EDGAR TREVITHICK, M.D. Cantab.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—May I be permitted to add to Dr. Collier's letter in a recent issue that modern text-books support his practical experience. In the latest issue of a popular text-book on "Sanitary Law and Practice"[1] I find the following: "The infection of measles ..... is not commonly conveyed by healthy persons, hence it is unnecessary to exclude from school the children of infected households if they have themselves had measles."

Again, Washbourn and Goodall, second edition, 1908 say: "It is spread *chiefly* in a direct manner by those suffering from it, but there is reason to believe that the infection *may* be harboured in fomites and conveyed by third persons." (The italics are mine.) It may be of interest here to mention that the experience of certain towns, amongst them Aberdeen and Edinburgh, which abandoned the notification of measles after a trial in each instance of over 20 years, shows how little effect at present administrative measures have on the control of this formidable disease, the reduction of whose huge indirect mortality is exercising the minds of all medical officers of health, and certainly merits the enforcing of more drastic measures to secure that end. Amongst such measures I would suggest the classification of measles with such diseases as scarlet fever, diphtheria, &c., and the taking of proceedings under the Public Health Acts against such parents as wilfully expose children suffering from the disease to the risk of the general community.

I am, Sir, yours faithfully,

June 10th, 1910. J. P. CULLEN.

SPINAL ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—I note in THE LANCET of May 7th under the heading "Spinal Anæsthesia" that your annotation says, "In the *Indian Medical Gazette* the fatality was clearly attributed to the excess of strychnine employed."

Surely, in his anxiety to exculpate novocaine the writer has worded his remark badly. A reader would gather that the dose of strychnine in this case was in excess of what is usually given with safety. Probably what he meant to convey was that death was held to have been possibly due to excess of strychnine having reached the nervous centres of respiration—not implying quite the same thing as the administration of an overdose of strychnine. It is not the particular drug employed nor the size of the dose that is the uncertain factor in spinal anæsthesia, but the difficulty of controlling its distribution.

I am, Sir, yours faithfully,

P. C. GABBETT,
Madras, India, May 25th, 1910. Major, I.M.S.

THE MATRONSHIP AT ST. BARTHOLOMEW'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—The recent appointment to the matronship of St. Bartholomew's Hospital has occasioned much adverse criticism both in medical circles and from nurses holding the certificate of the hospital. May I, as one of those nurses, briefly explain why we consider we have just cause for objection? Firstly, the age limit of 40 announced in the

[1] Robertson and Porter, second edition, 1909, p. 252.

advertisement notifying the vacancy excluded the great majority of nurses trained at St. Bartholomew's Hospital who are now holding positions as matrons of important hospitals, and have earned for themselves high reputations as administrators and teachers of nurses. Promotion in these days of keen competition is slow, and few nurses have, under modern conditions of training, held positions of importance in the nursing world, such as would qualify them for the matronship of the first Royal hospital before that age.

We consider also that as the nursing school has been organised for over 30 years and has trained pupils who have proved themselves capable of holding positions of high responsibility in all parts of the world, the precedent, adopted with advantage in making appointments to the medical staff, should be followed, and a candidate selected, where possible, trained in the school and who holds its methods and traditions in honour. This course has been followed in recent years in connexion with appointments to the matronship of St. Thomas's Hospital, King's College Hospital, Guy's Hospital, the Royal Infirmary, Edinburgh, and the Royal Infirmary, Glasgow, and it is manifest that if the other great training schools of the kingdom adopt this just method of conferring preferment upon their own pupils, while the authorities of St. Bartholomew's Hospital do not recognise the claims of their nurses for consideration, or the importance of protecting the prestige of their own certificate, the school will descend to a position of second rank.

Secondly, we hold very strongly that, if the election committee desired to appoint a lady to the matronship of the hospital trained in another institution, we had a right to expect they would have made a three years' certificate a *sine quâ non*, and not have gone out of their way to select a lady from an institution which certifies its pupils as proficient after two years' training, a standard now practically obsolete in this country. Since 1881 St. Bartholomew's Hospital has required of every pupil three years' probation in the wards of the hospital, followed by examination, before awarding its certificate, and no nurse can even be appointed a sister in the hospital until that certificate is gained. For this reason the St. Bartholomew's certificate and its nursing school have the highest reputation all over the world—a reputation deservedly earned for it by generations of devoted pupils.

There is not a nurse trained at St. Bartholomew's but feels keenly the slur put by the election committee upon the standard maintained, and the quality of the training given them, under the direction of their late revered matron, Miss Isla Stewart, and on her 23 years' devoted service to the welfare of the hospital, in passing over every pupil of the school to which she devoted her life. We feel sure that in support of our opinions in regard to this appointment we shall have the sympathy of a very large majority of St. Bartholomew's men, who practise all over the country, who approve the Bart.'s system of training and employ its nurses.

I am, Sir, yours faithfully,

June 14th, 1910. F. G. S.

THE REBATE ON PROFESSIONAL MOTORS.

To the Editor of THE LANCET.

SIR,—The Finance Act is law, and has been for some time. The mode of assessment of motor cars has been altered, and medical men are allowed a rebate of one half on cars that are used for professional purposes. I have written to the Comptroller's Department of the L.C.C. but have had no reply. Can you tell me how they can be made to refund?

I am, Sir, yours faithfully,

June 10th, 1910. PANHARD.

*** The present licences expire on the last day of this month. We understand that the needful certificates are not yet ready, but these will be issued shortly by the Local Taxation Department of the London County Council for those who live in that area, and by the other county councils for their respective districts. With the certificates will be issued declaration forms, which, when filled up, should in the case of residents in the London area be forwarded to the Local Taxation Department, County Hall, London. These will then be investigated by the district local taxation officers, and when vouched for as correct by them an order on the Post Office will be issued for the amount of the rebate.—ED. L.

TOWN PLANNING AT LIVERPOOL.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Liverpool, June 10th.

ABOUT two years ago in raising the question of a public abattoir for Liverpool there was occasion to recall the evil reputation that this great port had acquired during the first half of last century.[1] Indeed, so late as 1870 the average death-rate for the preceding ten years was 32·5 per 1000. The average death-rate during the five years 1903 to 1907 was 19·9 per 1000. Thus, though the death-rate still remains high, there can be no doubt but that an immense improvement has been realised. Naturally the progress achieved results from endeavours made in many different directions. No one public or private enterprise, however vast and far-reaching, could bring about such a change. Nor would it be easy to say which of the many improvements effected have had the largest share in bringing about the desired end. Yet there can be no doubt that the most dramatic fact of old Liverpool was its narrow courts, its cellar dwellings, with no drainage, hardly any water, and the 22,000 back-to-back insanitary houses that still existed in 1864. But what is also very remarkable is the fact that, while condemning and destroying insanitary areas in the congested parts of the city, the authorities did not wait for any Town Planning Act to take steps to prevent the creation of overcrowded districts in the as yet uninhabited surrounding of Liverpool. In fact, though an extensive planning scheme has been carried out, this was done before the adoption of the Town Planning Act.

In the first instance the municipality resorted to negotiation and persuasion. The landowners were shown that nothing could better contribute to raise the value of their land than the construction of wide and, where possible, of beautiful thoroughfares. In many instances there remained some fine old trees, and every effort was made to save them and include them in future gardens or shady side walks. But if some landowners were sufficiently perspicacious to appreciate these arguments, others were not. Though a good deal might be, and as a matter of fact was, accomplished by friendly negotiations, this only sufficed for the realisation of fragments of a general scheme. On the other hand, it was ample for experimental purposes. Thus if the municipality had gone to Parliament for powers to lay out thoroughfares at the landowner's expense and against his will which should be 80 feet wide, the demand would probably have been treated as unreasonable and brushed aside. As it was, the Liverpool authorities were able to approach Parliament with the established fact that roads 80 feet wide had been built, were more popular than older and narrower roads, and Parliament was therefore only asked to render obligatory what had already been done voluntarily and had proved satisfactory to all parties concerned. Thus a local Act was obtained by which roads laid out in areas to be newly developed must be 80 feet wide. Formerly the landlords gave land for roads 60 feet wide and constructed the roads. Now they were called upon to give land for roads 80 feet wide, but only to construct roads for vehicular traffic 35 feet wide. The remaining 45 feet were reserved for trees, grass, flower beds, and side walks. In some cases the amount of road work the landowner should supply has been reduced, the town obtaining more land in exchange. The law, of course, does not grant retrospective powers; the town cannot go back on what has already been done and widen existing streets without paying full compensation. The point gained is that henceforth the authorities can enforce the rule that new thoroughfares shall be 80 feet wide.

Gardens and Trees on the Road.

In practice, however, the town council of Liverpool has improved very considerably on what the law allows. Instead of 80 feet, a considerable part of the Queen's Drive is 108 feet wide, and Menlove-avenue, which is three-quarters of a mile long, is 114 feet wide throughout. In this case the expense was shared between the landlord, the tramway company, and the town. The centre of the space was paved for vehicular traffic and tramways, taking up 56 feet. On each side comes a paved side walk for pedestrians 8 feet wide, which will be used principally for getting in and

[1] See THE LANCET, August 22nd, 1908, p. 586.

out of conveyances. Then comes a border 13 feet wide for trees, grass, and flowers; a side walk 7 feet wide, and another border for plants and trees 6 feet wide. Altogether 29 feet on each side of the vehicular roadway are devoted to trees, vegetation, and side walks. Then only do we reach the domain of private property, where there will be still further gardens and trees before private houses rise up to interfere with the free circulation of the air and the direct rays of sunlight. As far as possible the new roads have been designed so as to include some fine trees. This was notably the case in the Larkhill-lane widening, where land with full-grown trees was purchased on either side and added to the now shaded and beautiful footways. Prescot-road was also widened 45 feet, and fine trees were saved which might have been cut down so as to build houses close up to the pavement of the thoroughfare.

How Landowner and Tenant Benefit.

The principle of the negotiations has been throughout to reduce the amount of road construction done at the landowner's expense and to obtain in exchange more width of land for the roads. Obviously from the public health point of view the chief object is to secure for ever the widest possible space between dwellings. To comply with hygiene and sanitary ideals there must be plenty of fresh air; the purifying rays of sunlight must be able to reach and bathe the walls of the houses. In securing these ends, so essential to the public health and happiness, the landowners have far more to gain than to lose. Whatever concessions they may be induced to make, and however severely the compulsory clauses of local Acts may deal with them, so long as the town continues to grow well-planned development will prove very much to their advantage. As an example, there is, for instance, the history of Princess-road. Some 20 years ago the ground here was let for grazing purposes at £3 per acre. To-day it can be sold on a building lease of 75 years at 6*s*. 9*d*. per square yard. If the authorities wanted to widen the road they would now have to pay 4*s*., 8*s*., and in some parts 14*s*. the square yard. Consequently new roads opening up new land for building purposes generally prove most profitable to the landowner; but the town authorities are right in seeing that the public health interests shall be well protected before aiding such developments. Above all, there must be no narrow thoroughfares, narrow backyards, and crowding of high houses built too close to each other. No such risk is present in the new suburbs now being opened up. Also it must be borne in mind that the width of a thoroughfare has a direct bearing on the architecture of the district. The moment a street is broad enough to obtain a good view of the houses that are on the other side of the way, the necessity of some architectural features becomes irresistible. Even if only modest houses at low rentals have to be built there will be some attempt to make a pleasing design. The obvious tendency is to build the better class houses in the broadest thoroughfares, only there is a natural limit, and if there are to be a great number of wide roads and avenues then there will not be enough wealthy people to inhabit them all. Consequently there may be in time such a large supply of new houses that the more modest purses will nevertheless be heavy enough to pay the lower rents likely to be charged in some of the fine avenues and roads where trees and vegetation abound and there is space enough to prevent any overcrowding.

The Liverpool Plan.

The plan on which these new roads are built is simple enough. Liverpool has for basis the Mersey, which is the port, and where now exist seven miles of docks. The tendency is to cluster as near as possible to the water side and the streets and houses stretch backwards inland in a fan shape. Half a wheel would represent Liverpool, the other half of the wheel being the Mersey, and the hub the centre of the city. The town planning consists of extending the spokes of the wheel into the as yet uninhabited parts of the surrounding country. Each spoke represents a thoroughfare starting from the centre to the outskirts. But to prevent too much traffic in the centre a circular road is in course of construction forming a hoop round the wheel and connecting the spokes while still at a considerable distance from the centre. This outer hoop is called the Queen's Drive and is the most important part of the scheme. The other roads are roads of access to the centre, spokes to the hub of the wheel, but these are for the most part elongations and widenings of thoroughfares that already exist. The Queen's Drive is new; it will enable a person starting from any point at a distance from the centre to drive round to the road by which he wishes to penetrate the centre, thus avoiding a good deal of cross traffic within the already congested central quarters. This hoop then that goes round the spokes of the wheel commences at Rice-lane and was built on to Cherry-lane, a distance of one mile, in 1904. The width is 84 feet. The second length was constructed in 1909, has the same width, and is three-quarters of a mile long, passing through the Walton district. Now comes another portion, also three-quarters of a mile, from West Derby-road across Lisburn farm, which will also be 84 feet wide and is not yet completed. From here by Black Horse-lane there is a length of one and a half miles for which all the necessary arrangements are not yet completed, and then we come to a magnificent road 108 feet wide and three-quarters of a mile long, commencing at the Childwall Priory-road. This is in course of construction and other similar stretches to the Woolton- and Allerton-roads are not yet complete. The Queen's Drive, it will be seen, will be several miles long and will connect all the outlying suburbs with each other.

Thus, in regard to town planning Liverpool is well to the fore. It has not to consider now what shall be done, but to complete what has been begun. In many parts sections of the scheme are successfully completed. On some of these new thoroughfares dwellings have already been erected and it was not necessary to wait long for tenants. Liverpool has suffered so keenly from the absence of any sort of town planning in the building up of the old parts of the town that it has shown a very natural determination to prevent the recurrence of any such fatal error. So far as I know, there is every reason to hope that new and greater Liverpool will be in the first rank among the large cities that intend to avail themselves of the principles embodied in what is called town planning.

THE GERMAN CONGRESS OF INTERNAL MEDICINE.

(FROM OUR BERLIN CORRESPONDENT.)

THE German Congress of Internal Medicine was held this year in Wiesbaden, Professor KRAUS (Berlin) being in the chair.

Diagnosis and Specific Treatment of Tuberculosis.

Professor SCHÜTZ (Berlin) said that the frequency of tuberculosis among cattle had doubled during the last 12 years. At one time the diagnosis of the disease as made by subcutaneous injection of tuberculin agreed very well with the results found after the animals were slaughtered, the amount of discrepancy being only 2 or 3 per cent. Recently, however, some foreign importers of cattle have materially lessened the value of this procedure by giving previous injections of tuberculin, the consequence being that in the year 1905 the tuberculin test gave a positive reaction in only 0·8 per cent. of the cases, whereas after the animals were slaughtered 24·7 per cent. of them were found to be tuberculous. Tuberculin might be employed otherwise than by subcutaneous injection, as, for instance, by the epidermal, the cutaneous, the intracutaneous, and the conjunctival methods of administration, but neither these nor the procedure by agglutination and precipitation have proved reliable. To destroy tuberculous cattle would be impracticable on the ground of expense. The administration of Behring's bovo-vaccine produced an immunity lasting for only one or two years, and large doses could not be used because tubercle bacilli might make their appearance in the milk.

Professor PENZOLDT (Erlangen) introduced a long and inconclusive debate upon the tuberculin treatment.

General Chemotherapy.

Professor EHRLICH (Frankfort) said that the investigations which he had been making in an endeavour to discover an internal disinfectant were now approaching completion. His new preparation, the chemical name of which was dichlorhydrat-dioxy-diamido-arsenobenzol, was also known

as "Preparation No. 606." It had been tried in the treatment of relapsing fever by Professor Iversen in St. Petersburg, who found that after a single intramuscular or intravenous injection of 0·2 or 0·3 gramme the spirilla completely disappeared from the blood. The relapses which occurred in 8 per cent. of the cases were very slight.

Dr. HATA (Frankfort), Professor Ehrlich's assistant, confirmed the statement that in animals the spirilla of relapsing fever disappeared from the blood after a single injection of the above compound, and that immunity was established, lasting for four days in the case of intravenous injections and from 35 to 50 days in the case of intramuscular injections.

Dr. SCHREIBER (Magdeburg) and Dr. HOPPE (Uchtspringe) reported the results which they had obtained in the treatment of syphilis and metasyphilitic diseases of the central nervous system. In 100 cases of recent syphilis and of metasyphilitic diseases a single intramuscular or intravenous injection of 0·3 or 0·4 gramme of Professor Ehrlich's compound caused disappearance of the symptoms and non-response to Wassermann's reaction in 92 per cent. of the cases. The syphilitic exanthem became in some cases at first a little darker, but then disappeared very quickly. Symptoms of intoxication were never marked; only an artificial exanthem and a temporary raising of the temperature happened. The fatal dose was 0·15 gramme for each kilogramme of an animal's weight, whilst the dose used for therapeutic purposes was only 0·008 gramme. The arsenic was usually excreted within four days, but in the case of paralytic patients 10 days might be required.

Vasotonin.

Professor MÜLLER (Berlin) reported the results of experiments which he had made with vasotonin, a compound consisting of urethane and johimbine. He found that in animals it produced a decrease of the blood pressure without congestion of the heart or troubles of the respiration. The blood pressure decreased because the blood flowed to the peripheral parts of the body, as was made obvious by the volume of the limbs increasing, whereas that of the kidney and the intestines diminished.

Dr. FELLNER (Franzensbad) said that the compound had been administered in 30 cases of hypertension, 1 cubic centimetre (= 0·01 gramme of vasotonin) being injected daily. The blood pressure became lessened in every case and various subjective symptoms which were complained of were considerably mitigated even in arterio-sclerosis of the brain.

Dr. STÄHELIN (Berlin) said that he had frequently used the preparation with success in the clinic of the University of Berlin. The blood pressure decreased considerably, as a rule, after a single injection and kept so for several days or even weeks. One patient lost his attacks of angina pectoris; all felt very much relieved, and there were only a few who felt a sensation of heat in the head and giddiness just as after inhaling nitrite of amyl. He was of opinion that vasotonin marked a decided advance in the treatment of arterio-sclerosis.

Professor KREHL (Heidelberg) said that a decrease of blood pressure did not necessarily denote an improvement in the patient's condition. He recommended great caution in the use of medicines which acted powerfully on the physiological processes regulating the blood pressure.

Acute Overstrain of the Heart.

Professor SCHOTT (Nauheim) reported some experiments which he had made on acute overstrain of the heart. In dogs he resected three ribs on both the left and the right side, so that after the healing of the wound he was able to palpate the whole circumference of the heart and to examine the movements of the diaphragm. In accordance with observations which he had formerly made on athletes and on cyclists, he found that mere walking did not cause an alteration of the heart, but that quick running produced a temporary dilatation, and running until exhaustion ensued was followed by permanent dilatation of the heart perceptible to both sight and touch.

The Origin and Treatment of Secondary Anæmia.

Professor GERHARDT (Basle), speaking on the subject of secondary anæmia, said that it had two different causes—namely, (1) loss of blood by hæmorrhage, and (2) destruction of the blood by toxins. It was probable, though not quite certain, that deficiency of fresh air and of light might bring on anæmia. Derangements of the metabolism of iron and a decrease of the absorption of the compounds of iron contained in the food were also causes of anæmia. According to Professor Sahli, iron could be absorbed only when the contents of the stomach had an acid reaction, and an absence of gastric acidity was the rule in grave and in pernicious anæmia. In malaria, syphilis, and cancer, the destruction of erythrocytes was proved by the presence of urobilin in the urine and by the red colour of the bone marrow. The anæmia of pregnancy and the puerperium was generally recovered from in about 50 per cent. of the cases, as normoblasts and megaloblasts were seldom present in the blood. Many cases of anæmia were accompanied by tumours of the spleen; certain diseases of the blood obviously proceeded from disease of the spleen and might be successfully treated by removal of that viscus. It was probable that, in these circumstances, the spleen had an inhibitory influence on the formation of the blood, but did not destroy it. A second group of anæmias was produced by poisons, such as chlorate of potash, aniline, and nitrobenzol, and experimentally by pyrogallol, phenylhydrazin, and hydroxylamin; the erythrocytes were considerably reduced in number by the action of these poisons. Professor Tallquist has been able to produce anæmia by the administration of extracts obtained from worms and also by the administration of oleic acid. A hæmolytic toxin could also be produced from the gastric and intestinal mucosa and from cancer tissues. There was a difference between the anæmias caused respectively by venesection and by poisons—namely, that in the former the resistance of the erythrocytes became smaller by repeated venesections whereas in the latter it became greater; in the former the blood obtained by venesection showed an increase of oxygen respiration, but in the latter not. Two groups must be distinguished in pernicious anæmia, one of them being produced by a functional defect of the bone marrow, and the other by a destruction of the blood. The sovereign remedy for anæmia was iron, but in pernicious anæmia arsenic must be given. The serum treatment of anæmia was still in the experimental stage.

Dr. SCHAUMANN (Helsingfors) reported the further course of 72 cases of anæmia which had been caused by bothriocephalus and were first published in the year 1894. Only 16 of them were at present in fairly good health; some had died from renewed attacks, and three were suffering from pernicious anæmia, notwithstanding the removal of the parasites.

Professor SCHMIDT (Halle) said that he doubted whether oleic acid was really an exciting cause of anæmia. On examining the mucosa of the gastro-intestinal canal in pernicious anæmia he had found powerful toxins and numerous cells showing fatty degeneration.

Professor KLEMPERER stated that he had found no difference between the mucosa of a normal intestinal canal and that of a patient suffering from pernicious anæmia.

Dr. KUHN (Biebrich) said that a morbid condition similar to pernicious anæmia might be produced by atoxyl; this made it very likely that the disease was caused by a hæmolytic toxin.

Professor MOHR (Halle) spoke against the theory that oleic acid destroyed the erythrocytes.

Infantile Paralysis.

Dr. KRAUSE (Bonn) described the acute infectious stage of infantile paralysis as observed by him in 780 cases during the recent epidemic in Westphalia and the Rhenish province. The majority of the patients were children in their second year, and the epidemic was at its height during the month of October. In the acute stage it was necessary to discriminate between the paralysis and the general symptoms, consisting of sore-throat and gastro-intestinal catarrh. As a rule only a fraction of the paralysed muscles were restored to their normal condition. The lumbar fluid was limpid. Death was generally caused by paralysis of the respiratory muscles on the third or fourth day. The mortality varied from 12 to 20 per cent.; complete recovery occurred in only from 15 to 18 per cent. of the cases.

Dr. MEINICKE (Hagen) said that the virus of infantile paralysis was very resistant against glycerine, high temperature, and putrefaction. It had hitherto been found only in the human body, especially within the central nervous system, the spleen, the blood, and the lumbar fluid. Experiments on animals showed that it had an incubation period varying from 8 to 12 days.

Dr. RÖMER (Marburg) said that by the experiments of Dr. Landsteiner on monkeys it has been ascertained that the incubation might last from 5 to 16 days, and that the nasopharynx was the place of entry. From there it penetrated through the lymphatic vessels into the central nervous system, where it produced a meningo-myeloencephalitis localised in the anterior cornu of the spinal cord. The disease was never contracted a second time. The virus was destroyed by a temperature of 55° C., as well as by carbolic acid and menthol.

Pathology of Gout.

Dr. UMBER (Altona) said that he had found that after an intravenous injection of monourate of sodium a healthy person excreted 95 per cent. of that substance within a short time, but some gouty patients excreted none at all, while others excreted variable amounts not exceeding 24 per cent., and that only very slowly. Dr. Umber concluded from his observations that the essential condition of gout was a retention of uric acid within the tissues of the body.

Dr. GUDZENT (Berlin) stated that the solubility of monourate of sodium was considerably increased by the emanation of radium; it was neither the α nor the β rays but a product of disintegration which had this effect. He had also discovered a body yielding the murexide reaction without being precipitable; it was probably the isomeric form of uric acid. He saw in three gouty patients the uric acid disappear from the blood under the influence of radium emanation and the tophi at the same time became smaller.

Dr. SCHITTENHELM (Erlangen) pointed out that the small excretion of uric acid in gouty persons after an injection of it had been given was not identical with a retention. He had found, together with Dr. Brugsch, that the essential feature in gout was not a renal retention but a slow destruction of uric acid; this was confirmed by the fact that a gouty person who had been taking food free from nuclein produced after the administration of nucleinate of sodium a smaller quantity of uric acid than healthy persons did. Gouty patients excreted the uric acid promptly after intramuscular injection.

Professor MINKOWSKI (Breslau) asked why gouty persons, notwithstanding the increase of uric acid in their blood, excreted a smaller quantity than healthy persons. He stated that the increase of uric acid in the blood of gouty persons had been ascertained by Dr. A. E. Garrod of London.

Professor KRAUSE said that the discoveries of Dr. Schittenhelm and Dr. Brugsch with respect to an increase of uric acid in the blood of gouty persons after they had been taking food free from purin were new and important and not to be confounded with Dr. Garrod's statements.

Professor KLEMPERER (Berlin) said that after radiogen baths he had seen improvement, but not any actual recoveries.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The University of Liverpool: The Benefactions by the Late Professor James Campbell Brown.

THE late Dr. James Campbell Brown, professor of chemistry in the University of Liverpool, by the terms of his will bequeathed to the professors of chemistry in the University of Liverpool and their successors for the time being his collection of old alchemical and similar books at present [September, 1905] on the bookshelves in his rooms at the University, and of which two card catalogues exist, unless he should have already disposed of them, to be cared for by them, kept together as a collection, and regarded as a nucleus of a collection for the professor's private room. But should the Senate not approve of this place and manner of keeping the books they are to be sold and the proceeds given to the Liverpool Governesses' Benevolent Society to increase the "Mrs. Campbell Brown Annuity." He bequeathed a sum sufficient to produce an annual income of £50, to Liverpool University to found an advanced chemical scholarship to be called "The Campbell Brown Scholarship," to aid students of sufficient ability and attainments to continue their studies after the third year of special study to be trained in the methods of chemical research. This scholarship shall not be payable to one preparing for the ordinary B.Sc. or M.Sc. examinations until free from the trammels of examination for the degrees, or any corresponding or lower degrees, and shall be held at the University of Liverpool. He also bequeathed a sum sufficient to produce an annual income of £800 to the University of Liverpool upon trust for the endowment of a chair of chemistry, in addition to existing chairs, to be called "the Campbell Brown chair," subject to the condition that the University shall pay a salary to the holder of the chair of not less than £800 per annum, and, in addition, two-thirds of the fees of his students for the teaching of industrial chemistry; or if a chair shall have been endowed, then either for a chair for the teaching of agricultural chemistry or a chair of some other branch of industrial chemistry. The professor of the chair is not to engage in ordinary analytical or consulting work, nor to undertake commercial work, although he should be allowed to engage in investigations connected with new processes of manufacture or other important industrial research. The bequest is subject to the conditions that the University undertakes to provide a suitable lecture-room and laboratories, giving ample accommodation for 20 advanced students, with a sufficient number of accessory and smaller rooms fully equipped for this special research and teaching, and to provide the cost of apparatus and material assistance to render successful the work of the chair; and he left a sum of £5000 to the University upon trust, to place the income at the disposal of the "Campbell Brown" professor for the time being towards the cost of his apparatus and material. If the University of Liverpool shall not accept the bequest for the endowment of the chair on these conditions, the whole sums are to be given to the University of Manchester to endow a "Campbell Brown" chair of music. Further, the testator's wife has power during her life, if she shall see good reason for so doing, to divert this bequest from the University of Liverpool to the University of Manchester. The residue of his property he left upon trust to found a series of entrance scholarships, each of the value of £60 per annum, to be held at the University of Liverpool, tenable for three years and renewable for a fourth year on the recommendation of the professors of the faculty. These scholarships are to be awarded at the entrance examination, the subjects to include Latin and German, especial attention being given to German, and for students who appear to be likely to succeed in chemical research. Such student shall proceed to a degree in the honours school of chemistry, and he is to forfeit this scholarship if he shall fail in any year from lack of diligence or ability to keep up his work to the standard required for a first-class honours degree. The will has been proved at £43,101, and the total amount available for charitable purposes would appear to be about £35,000.

National Association for the Prevention of Consumption.

The Lord Mayor formally opened a Tuberculosis Exhibition at St. Martin's Hall, Scotland-road, Liverpool, on Wednesday, June 15th. It will remain open for ten days, each day from 10 A.M. to 10 P.M. A popular lecture on "The Prevention of Consumption" was given by Sir James Barr, M.D. Special lectures will be given each evening at 8 P.M. by well-known medical men.

June 14th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Commemoration Day at the University of Glasgow.

COMMEMORATION Day, a biennial event, was observed in the University of Glasgow on June 9th. There was Divine service in the Bute Hall at 10.30 A.M., followed by the customary oration. The Rev. Dr. John Smith gave the oration, his subject being "Andrew Melville, Poet, Patriot, Reformer." Thereafter honorary degrees were conferred on various distinguished graduands. A reception in commemoration of "Founders' Day" was held at Queen Margaret College during the afternoon, and in the evening the honorary graduates were the guests of the University at dinner.

Suggested Epileptic Colony for Glasgow.

Glasgow parish council last week received the report of a deputation which had been appointed to visit colonies in England for sane epileptics. The deputation suggested that the projected accommodation should be of the colony type.

It is believed that there are some 200 epileptics for whom provision would require to be made. The most economical provision, the deputation stated, would be in the form of villas to hold 50 patients each, and, other things being equal, of the type of one-storey buildings seen at Monyhull, near Birmingham. In addition there would be the necessary administrative centre, laundry, central kitchen, farm, and general hall, attached to which latter they would advocate workshops with an abundance of light, air, and space. The reason for having large workshops is that the employment of patients would be continuous in all kinds of weather. In good weather they would be employed out-of-doors at farm and garden work, and in bad weather they could be employed in central workshops at the necessary repairs for the institution or in attending to the wants of the institution. Unremitting occupation, the deputation added, was the very best thing for warding off epileptic attacks and conducing to a contented and peaceful state of mind. It was true that many epileptics were not good workers, but from observation of numerous cases of epilepsy the deputation was confident that personal supervision of the individual wants of epileptics, while giving them employment, would conduce to a better state of affairs in that respect.

Death of Dr. P. A. Smith, Glasgow.

Dr. P. A. Smith, a prominent medical practitioner of Glasgow, died last week at his residence in Crosshill. Born in Glasgow 60 years ago, he received his early education at Dumbarton Burgh Academy. He graduated M.B., C.M. at the University of Glasgow in 1881 and M.D. in 1896. After his first graduation he acted as house physician in the Royal Infirmary, Glasgow, and commenced practice in Dumbarton. Early in his career, however, he returned to Glasgow, where he carried on a large practice up to the time of his decease. He held many important appointments in his time, most of them associated with the various Roman Catholic institutions in the city. He was also a justice of the peace for the county of the City of Glasgow, and for some years he was a member of Govan parish council. On the occasion of his retirement from practice in the Anderston district of the city three years ago he was entertained by his friends to dinner and presented by them with an illuminated address. The following year he was entertained again by his friends and received a presentation on the occasion of his attaining his semi-jubilee in practice, the company on that occasion including several Scottish Catholic bishops. Dr. Smith's wife—a sister of Archbishop Maguire—predeceased him 14 years ago. He is survived by three sons and three daughters.

Death of Dr. P. G. Bannister, Montrose.

The death took place very suddenly on June 9th in Montrose of Dr. P. G. Bannister. Dr. Bannister was born in Jamaica 40 years ago, and qualified as M.D. in Kingston, Ontario. On coming to this country he obtained the diplomas of the Edinburgh and Glasgow Colleges and commenced practice in Montrose five years ago. He was unmarried.

Strichen Hospital for Infectious Diseases: Committee of Inquiry Appointed.

At a meeting of the Deer district committee held at Maud on June 4th a committee was appointed to inquire into matters connected with the infectious diseases hospital at Strichen. A minute of a meeting of the committee of management of the hospital, held at Maud on March 26th, stated that there was submitted a report by the medical officer of health, dated March 9th, with reference to the case of a child, notified by Dr. J. H. Stephen, Strichen, to be suffering from scarlet fever and removed to the hospital. This case the hospital medical attendant considered doubtful, and 19 days after admission caused the parents to be informed that when admitted the child was not suffering from scarlet fever. After discussion it was resolved that if the medical attendant had doubt as to the correctness of the diagnosis made by Dr. Stephen it is to be regretted that he did not at once communicate with the medical officer of health as prescribed by the regulations, and, seeing the medical officer was not consulted, that he should have caused intimation to be made through the matron to the parents of the child. The clerk was instructed to intimate this resolution to the medical attendant. The minute of a meeting of the same subcommittee held on April 16th stated that a letter from Dr. G. S. Trail, medical attendant at Strichen Hospital, to the clerk, dated April 1st, animadverting on the terms of the minute dated March 26th, in so far as it stated that he had caused the parents of the child to be informed that when admitted to the hospital the child was not suffering from scarlet fever, was submitted and read. The minute, of which an extract was furnished to Dr. Trail, was based on a report by the medical officer of health of the county to the effect stated, which has been found to be substantially correct, and the subcommittee was satisfied that the minute was not open to the unwarranted language employed by Dr. Trail in his letter to the clerk, and that neither in that nor in any previous minute had the committee shown any discourtesy towards Dr. Trail. The clerk was instructed to intimate this resolution to Dr. Trail. At the meeting on June 4th exception was taken by one of the committee to the minute of the hospital subcommittee of March 26th, and after much discussion it was finally decided to appoint a committee, which would confer with the subcommittee of management in connexion with the hospital, and investigate the whole facts and the complaints of Dr. Trail alluded to in the minutes of March 26th and April 16th.

June 14th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ireland and the Midwives Act.

THE fact that an amending Bill to the Midwives Act is likely to come before Parliament in the near future has naturally raised the question as to whether the application of the Act should be extended to Ireland. So far, however, the point has hardly been considered, and the profession has not formulated any opinion on the subject. The Irish Branch of the General Medical Council has put forward a demand for the extension of the Act, and, as was announced in THE LANCET of June 11th, p. 1650, the Ulster Branch of the British Medical Association has expressed a similar wish. No other representative body has considered the question, though the Irish Medical Association and the Leinster and Connaught branches of the British Medical Association have all met within the past few weeks. The current number of the *Journal of the Irish Medical Association* invites the opinions of members of the Association, and prints an editorial paragraph and a letter from Dr. F. W. Kidd to open the discussion. Dr. Kidd has a right to speak with authority on matters concerning obstetric practice, and his argument is, on the whole, opposed to the extension of the Act. He holds that on the grounds of utility, or public safety, there is little need for the Act in Ireland. The training of midwives for registration, if the regulations which govern their training should remain as at present, would seriously interfere with the teaching of students in the Dublin maternities. As a result the prestige of Dublin as a school of obstetrics would suffer. The editor, whose opinions are also adverse to the measure, points out that the Act has not worked very satisfactorily in England, and therefore Irish medical men are right to be cautious.

The Working of the Tuberculosis Act.

In his annual report on the health of Armagh Dr. Hampton Gray, medical superintendent officer of health, remarks:—

> Your Board adopted Part I. of the Tuberculosis Prevention (Ireland) Act. Unfortunately the powers conferred by the Act are of no practical advantage in helping to eradicate tuberculosis. The country is so well informed with respect to all the dangers arising from the disease, the time has now arrived for the Local Government Board to call upon Parliament to pass an Act making notification of all cases of lung tuberculosis imperative. The present Orders for Notification, based as they are on the Notification of Tuberculosis Act, have so many restrictions, and so many loop-holes for those desirous of not notifying, that in reality both Act and Orders are dead letters, and will not effect that which was expected of them. The notification should not contain any words which signify that the sanitary authority are to make no inquiries concerning the sanitary surroundings of the dwelling in which consumptive is living. On the contrary, full powers should be given to the sanitary authority to investigate everything in connexion with these cases.

These comments are made after experience of the Act, and similar opinions are held elsewhere. The conditions under

which notification is to be made as laid down by the Local Government Board are so narrow that they render the notification provisions of the Act nugatory.

Lisburn Workhouse Fever Hospital.

The Local Government Board has just given its decision in reference to the circumstances attending the deaths of two children in the fever hospital of the Lisburn workhouse, which formed the subject of a recent inquiry by one of its medical inspectors. In reference to one of the cases it does not consider that there was any neglect of duty on the part of the medical officer; in reference to the other it finds that the medical officer's attendance was unduly delayed, but as he was as a rule regular in his attendance, the Board does not think that any serious notice on its part is called for. It recommends that the medical officer's residence be connected with the workhouse by telephone, and also that the infirmary and fever hospital should be in telephonic communication with the master's office, so that either place could be switched on to the medical officer's residence in case of need.

The Anti-tuberculosis Campaign.

As there is no likelihood of county bacteriologists being appointed at present in order that a correct and early diagnosis of consumption should be made, Dr. Samuel Agnew has got the Lurgan town council to become members of the Clinical Research Association, Limited, so as to obtain pathological, bacteriological, and chemical examinations at the members' scale of charges. The question of sending patients in the early stages to a sanatorium is to come up for consideration at the next meeting.

Royal Victoria Hospital, Belfast.

At a specially summoned meeting of the corporation of the Royal Victoria Hospital, Belfast, it was decided on June 9th to repeal a by-law which prevented bequests over £200 being used for the annual revenue of this hospital. In future, there will be two separate financial accounts: in one, all the present accumulated funds and any hereafter specially ear-marked for any specific purpose will be kept, and these funds cannot be employed for the annual expenditure, unless by a special vote of the whole corporation; the second account will in future consist of all donations and bequests not specially reserved, and these can be utilised for the annual upkeep of the hospital. The reason for making this alteration is that there are still 64 beds unoccupied owing to funds being wanted, and owing to the pressing and increasing number of patients demanding admission it is felt some effort must be made to meet the difficult situation.

The Belfast Board of Guardians.

Mr. J. S. Bryars, who for the past two years has occupied the position of chairman of the Belfast board of guardians, was accorded a very warm vote of thanks at the annual meeting of his colleagues on June 9th for the extremely efficient and satisfactory way in which he had discharged his duties, and much regret was expressed that he was unable to continue to occupy the chair.

June 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

International Congress of School Hygiene.

THE readers of THE LANCET may be reminded that the Third International Congress of School Hygiene will be held in Paris from August 1st to 26th under the honorary presidency of the Minister of Public Instruction. An exhibition in connexion with the congress will be on view in the Grand Palais in the Champs Elysées. It will include plans and drawings of school buildings and all kinds of materials employed in their construction, exhibits relative to the food, sleeping apartments, and clothing of school children, and sanitary requisites for schools; there will also be sections devoted to the teaching of hygiene in schools, to instruction during and after school age, to schools and classes for backward and defective children, to moral hygiene, and to the hygiene of the teaching staff.

Pupil Midwives and Professional Secrecy.

At a recent meeting of the Society of Legal Medicine M. Thoinot discussed an interesting case which had arisen at a hospital where there was a school for midwives. An unmarried woman had been delivered of a child in presence of the pupils. When a deserted infant was found soon afterwards suspicion fell on her, and the examining magistrate wished that all the pupil midwives should see the deserted infant so that they might, if possible, recognise it. The medical director of the school protested against this, saying that the pupil midwives were present at the delivery in a medical capacity and that they were therefore bound by the rules of professional secrecy, but the magistrates to whom the matter was referred did not share this view. M. Thoinot then resolved to lay the facts before the Society of Legal Medicine, which was unanimously of opinion that the pupil midwives being cognisant of the circumstances in a medical capacity were bound by the rules of professional secrecy.

A Cookery Competition.

On the occasion of the International Cookery Exhibition M. Mesureur, the director of the Assistance Publique, asked the members of the jury to act as judges in a cookery competition arranged by himself, at which prizes were offered to the *chefs* of the Paris hospitals. In the result the gold medal was awarded to the Hôpital Tenon, the names of the hospitals which took prizes of less value, arranged in three classes, being as follows:—(1) Silver-gilt medals: Boucicaut, Hôtel Dieu, Ivry, and Saint Louis; (2) silver medals: Beaujon, Laennec, Maternité, and Pitié; and (3) bronze medals: Bicêtre, Broussais, Cochin, and Salpétrière. If this new departure is followed up and duly supervised there is room for hoping that hospital patients will soon be supplied with food which will be at once wholesome, sustaining, and palatable.

The Sale of Morphine.

An important decision with reference to the sale of morphine has recently been given by the Tenth Chambre Correctionnelle. A pharmaceutical chemist having sold morphine without a medical prescription to a student at Nancy, the latter gave it to one of his comrades, who, as a result of taking it, contracted the morphine habit. The father of the victim then brought an action for damages against the chemist, who, in his defence, said, in the first place, that he was responsible only for his own action but not for the action of the student who had given the morphine to his comrade, and, in the second place, that he had no direct connexion with the injury sustained by the consumer of the morphine. The Lower Court upheld this view, but the higher Tribunal ordered the chemist to pay 100 francs fine and 4000 francs damages on the ground that a pharmaceutical chemist who sells a poisonous substance without a medical prescription knows that he is liable for whatever misuse may be made of it, either by the first recipient or by the next person who comes into possession of it.

The Société de Médecine of Paris.

At a meeting of the Société de Médecine held on June 10th M. de Keating-Hart showed a man who had formerly suffered from cancer of the floor of the mouth with cervical adenitis. After treatment by electrical fulguration he had now remained free from the disease for nearly two years. The interest of the case was increased by the fact that a year ago M. Quenu, on seeing the patient at a meeting of the Surgical Society, expressed the opinion that a relapse was imminent and that the treatment had been a failure. M. Quenu appeared to have been misled by a nodular cicatrix which perhaps resembled a patch of cancer in relapse, but was nevertheless frequently seen in cases treated by fulguration.—M. Dartigues reported a singular case of injury sustained in a recent duel. A pistol bullet of 12 millimetres diameter fired at a distance of 16 metres pierced the trouser of the person struck, but carried before it to a depth of 8 centimetres the corresponding portion of his silk drawers, the silk material being invaginated like the finger of a glove. In its course the bullet divided the internal saphenous vein. Three similar cases were recorded by Baron Larrey, surgeon to the armies of the First Empire.

June 14th.

ITALY.

(FROM OUR OWN CORRESPONDENTS.)

The Fight against Malaria.

"THE fight over malaria" might for the present replace the above rubric, as there is war in the very camp itself where there should be nothing but concord and settled strategy against the common foe. The pitched battle in the Royal Medical Academy of Rome, where the Dean of Italian Medicine came into open conflict with the overwhelming majority of his colleagues, has had its repercussion in the Chamber of Deputies, where, in a debate on the budget of the Minister of the Interior, the etiology, prevention, and cure of malaria rose again to the front. The protagonist this time was the professor of pathology in the University of Naples, Dr. Nicola Badaloni, who, in a speech of great ability, reopened the entire question, and while strenuously vindicating the Consiglio Superiore di Sanità and loyally supporting the State policy inspired by it in the provision, distribution, and exhibition of quinine therapeutically, if not prophylactically, wound up with a demonstration that, however vigilantly antagonised by treatment, malaria will remain a "constant quantity" so long as agriculture in its most scientific and thoroughgoing sense is neglected. This brought up the Dean of Italian Medicine aforesaid (Dr. Baccelli), who gave his unqualified adhesion to the position of Dr. Badaloni, insisting again on the *causa causans* of malaria as residing in the derelict or deteriorated soil, and seeing in hydraulic measures (*inter alia*) the true *modus operandi* in combating it. He then launched into what was really a clinical lecture on the action of quinine on the malaria-infected organism, maintaining that only when the malaria poison was present in the circulation had the drug any germicidal virtue, and that, on the contrary, exhibited by way of prophylaxis to the healthy subject, it was not only inert, but a veritable poison to the vaso-motor system. So far the fight, as between the Royal Medical Academy and its most authoritative member; but a third passage at arms has also been in progress between Dr. Grassi, professor of comparative anatomy and entomology at the Sapienza, and Dr. Bignami, author of the "order of the day," carried, in spite of Dr. Baccelli, by the Medical Academy itself. Dr. Grassi, in very able letters to the *Tribuna*, maintains that the wire-netting as a medium for keeping the anopheles at bay had been unworthily ignored, and replies at length to objections taken to the protective apparatus referred to. Till the "radical cure" is a *fait accompli* we must, he concludes, at whatever sacrifice, employ "mechanical protection," and meanwhile admit the fact, theoretically and practically, that "the prophylaxis by quinine ingested in small doses for many months in succession and repeated year by year *usque ad mortem* on entire populations, is a veritable Utopia." And thus the "pretty quarrel" is being fought out, while, in the words of not the least able of the combatants, the reclamation of the soil, steadily progressing, combines with the prompt and effective exhibition of quinine undoubtedly to lessen the mortality from malaria among the 8,000,000 of Italians in the regions where it is endemic.

Food Poisoning.

In one of the stages of the recent bicycling match round Italy three of the competitors on alighting at Teramo and partaking of refreshment were seized with violent abdominal pains, the chief sufferer being the winner (as he ultimately proved), Signor Ganna. At once the suspicion arose that there had been foul play, a suspicion always likely to obtain credence when "there is money on the game." Dr. Lorenzo Paris, however, writing from Teramo, where he saw the bicyclists as patients, excludes the idea of "foul play" and while admitting that the tomatoes consumed (possibly tinned) may have induced the symptoms, finds concurrent causes in the violent exertion, the checked perspiration, and the excitement. In any case the patients were fit enough to continue their course, and the chief sufferer (as stated) to come home the winner. At Ravenna, however, a far more serious incident of the kind occurred. Ice-cream purveyed by a well-known confectioner and consumed by some 400 persons, mostly children, was followed by undoubted symptoms of poisoning—abdominal inflation, high temperature, and pain diffused over the body reaching its maximum in the chylo-poietic viscera. Two of the victims died, other four were last reported as *in extremis*, while the others are still suffering, more or less severely. Expert examination of the ices disclosed the fact that the eggs employed in their preparation were in an advanced stage of decomposition, and that the poisoning they induced was of the ptomaine order. Two of the waiters on duty at the confectioner's have been arrested. The incident, occurring at the beginning of the season, when the consumption of ices is universal and on an inordinate scale, has produced an impression which, it is hoped, will not be thrown away on the purveyors of ices and the sanitary officers charged with their surveillance.

New Law affecting Foreign Practice in Italy.

The question of the foreign practitioner in Italy, which for so many years has agitated medical circles in this country, has now been settled in what appears to be a fair and satisfactory manner by the Bill which has lately been passed by the Chamber of Deputies. Approved a year ago by the Senate, this Bill, on account of the fall of the Giolitti Ministry, has only now reached the Lower House and been placed upon the statute book, under the title of "Sugli Ordini dei Sanitari." The object of the Bill as described by its promoter, Signor Giolitti, is the institution of organised bodies for the legal representation of the sanitary classes similar to those already existing for the members of the legal profession. There was at first some idea of uniting the medical profession with veterinary surgeons and pharmacists for this purpose, but this proposal had to be abandoned as, for obvious reasons, impracticable, and provision made for a separate organisation for each of the three categories.

Article 1 of the new law therefore provides for the institution of an "Ordine dei Sanitari" in each province of the kingdom for each of the three classes above mentioned. This will be accomplished by means of a register for each category, in which the names of all belonging to that category must be inscribed.

According to Article 2, the enjoyment of civil and political rights and the possession of a professional diploma granted by a recognised institution of the kingdom are the qualifications necessary for registration. To this rule there are certain exceptions. The first regards women with civil rights who have taken a professional diploma entitling them to practise and whom it would therefore be illogical to exclude merely because of their political disability. The same consideration holds good for foreigners who have civil rights and have taken a professional diploma in a competent institution of the kingdom. A third exception is made in favour of citizens and foreigners who have taken a professional diploma abroad. But in this case registration is permitted only to the possessors of foreign diplomas from universities in those states which grant reciprocal rights to diplomates of Italian universities. To obviate injustice being done to foreign practitioners settled in Italy under the old law, Article 10, however, authorises such persons to continue provisionally the exercise of their profession, but only amongst foreigners, and only on condition that for more than two years before the promulgation of the new law they have been enrolled on the list of tax-payers paying taxes on their professional income.

Article 3 makes inscription on the provincial register the *conditio sine quâ non* for the unrestricted exercise of the profession in the kingdom and in its colonies and protectorates, except in the case of sanitary officials connected with the public administration of the State, or of the provinces, or of the communes, and who do not engage in private practice. Such officials are only subject to the discipline of the "Ordine" in so far as may concern their private practice.

By Article 4 no one is permitted to inscribe contemporaneously in more than one provincial register, but his name may be transferred from one register to another under certain conditions.

Article 5 limits the registration fee to a maximum of 25 lire (£1).

Article 6 regulates the election of an executive council for each provincial "Ordine."

Article 7 defines the duties, functions, and disciplinary powers of these executive councils. *Inter alia* they are empowered when requested to intervene in disputes between members, or between a member and his client in regard to charges, fees, or other professional questions, to repress abuses, and to punish those guilty of unprofessional conduct.

Articles 8 and 9 refer to appeals from the "Ordini" and their councils and to various details of administration.

As will be seen, the position of foreign practitioners is considerably affected by the new law. Up to the present, the possession of a diploma from any recognised foreign medical school has been sufficient to secure all the privileges the foreign practitioner wanted—namely, the right to practise amongst foreigners. Henceforward, only those whose respective countries grant reciprocity of medical practice to Italy will be admitted to exercise their profession there. As at the present moment Britain is the only foreign country which has conceded such reciprocity,[1] British practitioners are the only ones whose foreign diplomas can gain them admission to the Italian register. The new law, therefore, affects the British practitioner in Italy favourably, since it gives him complete freedom to practise amongst Italians as well as amongst foreigners. Other foreign practitioners will be variously affected. None of them will be entitled to practise amongst Italians unless they possess an Italian diploma, but those already established and who have been enrolled for more than two years as contributories to the tax on professional incomes will, for the present at all events, be allowed to continue the exercise of their profession, although only amongst foreigners. Finally, all eligible foreign practitioners must become members of the new "Ordini," or associations of the provinces in which they practise, and consequently become subject to the discipline of these "Ordini." Altogether, the new regulations must be acknowledged to be equitable and just, even by those—and they are very few in number—on whom they fall most heavily. New arrivals, indeed, possessing diplomas of countries which do not grant reciprocity to Italy will be excluded henceforth from practice, but even to these it remains open to qualify themselves by taking an Italian degree, which is still obtainable under comparatively easy conditions.

June 10th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The late Professor Robert Koch.

IN accordance with his testamentary instructions the funeral of the late Professor Robert Koch was conducted with great simplicity. The remains were cremated on May 30th in the crematorium at Baden-Baden, without any previous announcement, not even his friends being informed of the hour at which the event would take place. Besides the widow the only persons present were Professor Gaffky, his successor in the directorship of the Institution for Infectious Diseases, and the deans of the medical faculties of the neighbouring universities of Strasburg and Heidelberg. The deans had come to express condolence on behalf of their faculties to the widow and happened to arrive at the time of the cremation. The *Deutsche Medizinische Wochenschrift* has published an account of Professor Koch's illness written by his medical attendants, Professor Kraus and Professor Brieger. They state that the deceased had for years had an intermittent pulse and that slight symptoms dependent on cardiac stenosis had developed since last March; he had never been addicted to excessive smoking, but repeated attacks of malaria and an attack of cholera had weakened him. During his long journeys through Africa, Asia, and America he had always felt perfectly well. On the night of April 9th in the present year he had a severe attack of angina pectoris which nearly carried him off and made it very probable that he suffered from sclerosis of the coronary arteries and myomalacia of the heart. Pulmonary œdema and passive congestion in the liver and kidneys with albuminuria were present, but disappeared on the administration of digitalis, caffeine, and morphine. A complete recovery, however, did not occur, dyspnœa and pulmonary œdema developing after every slight bodily exertion. He was, however, able to take carriage exercise several times after May 14th, to receive the visits of friends, and to dictate letters. He was perfectly aware of the seriousness of his condition and at the beginning of his illness he had predicted that the end would come in from three to eight days. His medical attendants were subsequently able to persuade him that the dyspnœa was partly due to an old tuberculous focus in his lungs, and it is remarkable that he was then perfectly satisfied because he was not the least afraid of tuberculosis. About a week previous to his death he was taken to Baden-Baden at his own special desire but against the advice of his medical attendants; he arrived there feeling tolerably well, but the symptoms of cardiac stenosis soon became more frequent and finally proved fatal.

Death of Professor Curschmann.

Within a comparatively short period the medical profession of Germany has lost three eminent members, the deaths of Professor Koch of Berlin and Professor Lenhartz of Hamburg being now followed by that of Professor Curschmann of Leipsic. Professor Curschmann was born in 1846 in Giessen, his father being a teacher in a public school. He studied medicine at the university of his native town, and after becoming qualified he acted as house physician at the Rochus Hospital in Mayence. From Mayence he came to Berlin as an assistant to that distinguished clinical teacher, the late Professor Traube; in 1875 he obtained recognition as a *privat-docent* and was appointed chief physician to the Moabit Hospital in Berlin. From Berlin he removed to Hamburg, where he was chief physician to the State Hospital till 1888, when he was appointed ordinary professor of clinical medicine and director of the medical clinic at Leipsic in succession to the late Professor Wagner. Professor Curschmann was an excellent teacher and an eminent therapeutist. He devoted great attention to the improvement of therapeutical methods. In addition to important treatises on typhoid fever, on small-pox, on enteric fever, and on the functional troubles of the genital organs he wrote numerous articles in many different branches of clinical medicine.

June 13th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE statement of plague for the week ending April 16th shows for the whole of India a mortality of 20,365, as compared with 23,988 in the previous week. The deaths in the different provinces were as follows: Bombay Presidency, 709; Bengal, 1439; the United Provinces, 4753; the Punjab, 10,916; Burma, 293; the Central Provinces, 198; and Rajputana, 1890. The worst areas in the United Provinces during the week under review were: Unao District, 351; Gorakhpur, 318; Muttra, 609; Benares District, 399; and Badaun, 250.

The Health of the United Provinces.

It is strongly to be hoped that the next published report on the municipal administration of the United Provinces will be able to record some effective coöperation on the part of the municipal boards in the serious efforts which have lately been made for the improvement of the public health. In 1908–09, as compared with the previous year, the total number of births registered declined from 124,500 to 108,360, whilst that of deaths rose from 145,888 to 148,447. During the year in question, while the general excess of deaths over births attained the deplorable rate of 12·93 per 1000 of the population, this figure was considerably exceeded in some of the towns, while 23 municipalities, situated for the most part in the Meerut, Agra, and Rohilkhand divisions, returned death-rates of 60 per 1000 or over. Malarial fever may no doubt be cited as the main cause of this high proportion, since the epidemic of that autumn was admittedly devastating in its effects. Some further reason is presumably required to account for the appalling infant mortality of the year,

[1] *Vide* Order in Council of March 9th, 1901, published in the London Gazette of March 19th, 1901, putting in force the second part of the Medical Act, 1886, in favour of Italy.

amounting to a rate of 352·93. Since the publication of the last report, however, effect has been given, as circumstances have allowed, to a number of the recommendations of the sanitary conference convened by the Lieutenant-Governor to consider in detail the improvement in conditions, while the special aspect of infant mortality will by now have benefited by the researches of the female staff appointed to investigate its causes at Cawnpore. Investigation has also been proceeding into the causes of malarial fever in the province. But there can be no doubt that the great advance to be looked for must be in the direction of municipal self-help and a ready effort on the part of the boards to give effect to the recommendations of the sanitary officers and to take swift action in accordance with the inspection notes. But if such had been the attitude of the local authorities last year in such municipalities as those of Kandhla, Kurja, Jalesar, and Brindaban, it is certain that the returns connected with their names would not have afforded such regrettable reading.

The Sanitation of Lahore.

The Punjab Government only recently gave the municipal committee the services of a duly qualified health officer, and from the report of that officer for the quarter ending Dec. 31st, 1909, it is clear that there is much room for improvement. Dr. J. L. Newell says that the question of the conservancy of the city and the civil station has received his attention ever since he took over charge of his duties. Many irregularities, he says, have been removed, but he regrets to state that "the conservancy must be considered unsatisfactory." He thinks that the time has come when the committee should definitely decide to hand over the control of the conservancy arrangements to the health officer, as unless this is done efficiency cannot be restored. Conservancy is a technical subject, and it would be wise to leave it to the health officer. We wonder if the attention of Dr. Newell has been directed to that unspeakable nuisance—the conservancy cart, which may be seen "wending its slow length along" even at midday on some of the most frequented roads in the civil station. According to the health officer, the state of affairs regarding the supply of milk is highly unsatisfactory. He hopes, however, that milk licences, at present under consideration, will bring about a much needed change for the better. The report also refers to the need for improvement in the slaughter-house and the meat market.

April 23rd.

Obituary.

WILLIAM HENRY SPENCER, M.A., M.D. CANTAB., M.R.C.P. LOND.,

FORMERLY CONSULTING PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY.

Dr. William Henry Spencer died at his residence, 8, Asberton-road, Oxford, on May 27th, in his seventy-third year. The deceased was educated at the University of Cambridge and St. Mary's Hospital, London. He graduated M.A. of Cambridge in 1866, M.B. in 1872, M.D. in 1878, and in 1888 obtained the M.R.C.P. Lond. Dr. Spencer was for some years senior physician to the Bristol Royal Infirmary, while he also lectured on the practice of medicine and on pathology at the Bristol Medical School from 1874 to 1888. Amongst his contributions to the literature of medicine are "Elements of Qualitative Chemical Analysis"; and "The Tendency of Disease to Cause Disease, illustrated by the Pathology of Diseases of the Heart and Lungs." He was a thoroughly learned physician.

ARTHUR JOHN SHARP, M.D. LOND., F.R.C.S. ENG., D.P.H. CAMB.

THE medical profession has lost in Dr. Arthur John Sharp, whose premature death occurred on June 6th at Nottingham, a physician of considerable performance and of very great promise. He was the younger son of the Rev. John Sharp, and was born on Dec. 23rd, 1867, at Masulipatam, in South India, where his father was at the time principal of the Church Missionary Society's College. His mother was a daughter of the late Dr. Lachlan MacLean of Oban, and it is interesting to note how very closely Dr. Sharp was connected to the medical profession through his relatives. Among the well-known medical men to whom his family was related were the two William Heys of Leeds and William Sharp of Bradford, who died in that town in 1832.

From 1872 to 1878 Arthur Sharp lived at Rugby under the care of his grandfather (yet another medical man), the late Dr. William Sharp, F.R.S. From Mostyn House School, Parkgate, where he studied, he gained two scholarships simultaneously at Marlborough College, and in due course distinguished himself there. At the close of his school career he gained a scholarship at Lincoln College, Oxford, but surrendered it to study medicine at Guy's Hospital. Here he was a successful student and subsequently, having graduated in 1892 as M.B. Lond., held the posts of resident obstetrician, assistant house surgeon, and assistant house physician. He also acted as clinical assistant at the Evelina Hospital for Children. In 1893 he qualified as M.R.C.S. Eng., L.R.C.P. Lond., and in the following year took his M.D. degree. Two years later he took the D.P.H. at Cambridge and proceeded also to the Fellowship of the Royal College of Surgeons of England.

He practised at Whitby for eight years, and in May, 1898, married the eldest daughter of the late Dr. S. H. Ramsbotham of Leeds. He moved from Whitby to Nottingham five years ago for family reasons. Dr. Sharp was a life member of the St. John Ambulance Association and honorary corresponding secretary to the Nottingham Medico-Chirurgical Society. He held the appointment of assistant medical officer to the Sheffield education authorities, but never acted in this capacity, as the post was given to him during the course of his long illness in the hope of his recovery. Amongst his numerous contributions to various medical journals are "Puerperal Fever Successfully Treated with Antistreptococcic Serum," "Perityphlitis and Life Assurance," "Notification of Births Act," and a serial communication which appeared in the *Guy's Hospital Gazette* entitled "The Scientific Diagnosis of Nervous Diseases."

Dr. Sharp was devoted to his profession, but his interests were not confined to it alone. He was a keen student of English history and architecture. He was president of the Church of England Men's Society at Nottingham, and at the request of this society a memorial service to mark the high esteem in which he was held by all its members took place in St. Nicholas Church on June 10th simultaneously with the funeral at Ambleside, where the service was conducted by his brother-in-law, the Rev. A. Ramsbotham, M.A., vicar of New Seaham. By his own request the remains were interred in the grave of his grandmother (Mrs. Sharp). Dr. Sharp died from the effects of septicæmia which he contracted during the performance of a post-mortem examination over six years ago. He was ill with typhoid fever at the time of the necropsy, and had he relinquished his duties sooner it is possible that the medical profession would not now be mourning his loss.

FRANCIS EDWARD CANE, L.R.C.P. & S. EDIN., D.P.H. CAMB.

WE regret to chronicle the death of Francis Edward Cane, divisional surgeon of the metropolitan police for the Edmonton district, at the age of 55 years. Born in Kilkenny, the son of Alderman Robert Cane, M.D., he was educated in Dublin and afterwards at St. Mary's College and Stoneyhurst. His medical studies were pursued at the Edinburgh School, where he obtained the diplomas of the joint colleges in 1881, and later in London at St. Bartholomew's Hospital. After serving for some time as resident medical officer at the Bradford Infirmary he spent several years acting as medical assistant to practitioners in various parts of the country, acquiring in this way a large amount of professional experience. For a short time he practised in Leeds, but for health reasons he gave this up and accepted the appointment of ship surgeon in the service of the Cunard line. For about eight years he remained at sea, and after carrying on a medical practice for a brief period in America, at Boston, he returned to England, and finally established himself in general practice at Edmonton, where his kindness of heart, his keen sense of humour, as well as his simplicity and straightforwardness of character, soon brought around him a large circle of friends. His varied professional experience and scientific knowledge were quickly recognised, and he had no lack of patients. Some seven years ago he married an

American lady, Miss Helen M. Carter of Boston, who is left with two young children to mourn their loss.

Mr. Cane was an exceptionally well-read man and inherited from his father decided literary tastes. He contributed articles frequently to the general press as well as to technical journals, such as the *English Mechanic*. He took a great interest in astronomy and wrote with some authority on meteors. His medical contributions were somewhat varied in character and showed a wide range of knowledge. His article on the Physiology of Dreams, published in the columns of THE LANCET in 1889, is an example of his versatility. His long experience of life at sea had given him a keen interest in the condition of seamen, more especially as regards their fitness for duty. In this connexion he published articles in the medical periodicals on the Hearing of Seamen and on Colour and Vision Tests for Seamen. He took no part in local politics, though he was asked on more than one occasion to stand as a candidate for the urban district council of Edmonton.

Mr. Cane's funeral took place on May 27th, the coffin being carried to the grave by members of the metropolitan police, a large contingent of the Edmonton Division being included among the mourners. His only surviving brother, Colonel R. Cane, R.A., owing to ill health, was unable to be present. The universal respect and esteem in which Mr. Cane was held in the locality were shown by the large and sympathetic crowds which assembled in the streets to witness the funeral procession passing on its way to the cemetery.

JOHN EUGENE ADOLPHUS CHATELIER, M.B., C.M. EDIN.

WE regret to have to announce the death of Dr. John Eugene Adolphus Chatelier, the senior medical superintendent at the City Hospital, Birmingham, which occurred on June 9th. He was born in Madras in 1867. He spent three years in the study of medicine at the Madras College, and completed his studies in Edinburgh, where he graduated in 1893. Shortly after this he was appointed assistant medical officer to the City Hospital in Birmingham, but after a few months he gave up this position to become medical superintendent to the Little Bromwich Small-pox Hospital. Subsequently he returned to the City Hospital, where his special charge was the fever wing. His death is regretted by the many friends to whom his personal qualities of sympathy have endeared him, and inflicts a serious loss on the public health committee of Birmingham.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Howard H. Barker, formerly professor of midwifery and gynæcology in Georgetown University, Washington.—Dr. Scherb of the Algiers School of Medicine.—Dr. Josef Grünfeld of the Vienna Polyclinic. His name is known in connexion with the endoscopy of the bladder and urethra.

THE BRITISH ANTARCTIC EXPEDITION, 1910.—In connexion with the announcement of the departure of the *Terra Nova* from the West India Docks on June 1st, we are informed that the entire medical equipment and all photographic chemicals for the expedition were supplied by Messrs. Burroughs, Wellcome, and Co.

THE ROYAL SANITARY INSTITUTE.—A provincial sessional meeting of the Royal Sanitary Institute will be held in Dublin on June 24th and 25th. On the first day, at 8 P.M., in Trinity College, discussions will take place on "The Water-supply of Irish Towns," to be opened by Mr. J. H. Swiney, M.Inst.C.E., and on "The Bacteriological Standards of Potable Water," to be opened by Dr. E. J. McWeeney, professor of pathology and bacteriology in the University College, Dublin. Colonel J. Lane Notter, R.A.M.C., will preside, and a general discussion is invited. On June 25th there will be a demonstration at the Dublin Metal Joining Company, where tea will be provided. Further particulars can be obtained from the secretary of the Royal Sanitary Institute, 90, Buckingham Palace-road, London. Mr. W. Kaye-Parry, M.Inst.C.E., 48, Kildare-street, Dublin, is the local honorary secretary.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council of the Royal College of Surgeons of England, held on June 9th, the diploma of Fellow was conferred upon the following gentlemen who passed the examination held on May 19th, 23rd, 24th, 25th, 26th, and 27th, for which 65 candidates presented themselves, 24 of whom were approved (including two candidates—P. B. Bharucha, L.M. and S. Bombay, M.R.C.S., L.R.C.P., and Walter Burford Johnson, M.B., B.S. Lond., M.R.C.S., L.R.C.P.,—who have not yet attained the age of 25 years), and 41 were referred:—

Campbell Dykes, Captain, I.M.S., M.B. Lond., M.R.C.S., L.R.C.P., University College and London Hospitals; Thomas Shepherd Novis, Captain, I.M.S., M.R.C.S., L.R.C.P., London Hospital; Thomas John Carey Evans, Lieutenant I.M.S., M.R.C.S., L.R.C.P., Glasgow University, London and St. Bartholomew's Hospitals; Evelyn Henry Bardens Oram, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. George's and St. Bartholomew's Hospitals; Andrew John Metford Wright, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Bristol University and London, Hospital; Lorima John Austin, B.A., M.B., B.C. Cantab., M.R.C.S. L.R.C.P., Cambridge University and London Hospital; Basil Thorn Lang, M.A., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; Kenelm Hutchinson Digby, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Guy's Hospital; Walter Bristow Griffin, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; Harold Fitz Vellacott, M.R.C.S., L.R.C.P., London Hospital; William Archibald Campbell, M.B., Ch.B. Glasg., M.R.C.S., L.R.C.P., Glasgow University and London Hospital; David Davies, M.R.C.S., L.R.C.P., London Hospital; William Robert Douglas, M.B., Ch.B. Vict., M.R.C.S., L.R.C.P., Manchester University; Philip Seston Vickerman, M.B., Ch.B. Edin., M.R.C.S., L.R.C.P., Edinburgh University; Alan MacDonald Dick, Lieutenant, I.M.S., M.B., Ch.B. Edin., M.R.C.S., L.R.C.P., Edinburgh University and St. Bartholomew's Hospital; Felipe Guevara-Rojas, M.D. Caracas, M.R.C.S., L.R.C.P., Caracas University and St. Bartholomew's Hospital; Cecil Augustus Joll, M.B., B.S., B.Sc. Lond., M.R.C.S., L.R.C.P., L.D.S. Eng., Bristol University and University College Hospital; Howard Buck, M.B., Ch.B. Vict., Manchester University and London Hospital; Robert Harold Campbell, M.B., Ch.B. Glasg., Glasgow University and London Hospital; James Eadie, M.B., Ch.B. Glasg., Glasgow University and London Hospital; Robert Jamison, M.B., B.Ch., B.A.O. R.U.I., Queen's College, Belfast, and London Hospital; and George Herbert Ussher, M.D., Ch.B. Edin., L.M. Dub., Edinburgh University and London Hospital.

The Council conferred the diploma of Member upon Arthur Rocyn Jones, Cardiff and University College Hospital, who has now complied with the bye-laws. Licences in Dental Surgery were also conferred upon the undermentioned three gentlemen, who have passed the requisite examinations and have now complied with the by-laws:—

Claude Gray Colyer, Charing Cross and Royal Dental Hospitals; Richard Pittard Davies, Middlesex and National Dental Hospitals; and Richard Gorrall Miller, Charing Cross and Royal Dental Hospitals.

THE Institute of Marine and Tropical Diseases at Hamburg is to be enlarged, and the senate and freemen of Hamburg, recognising the importance and excellence of the work it has already done, have voted £65,000 (1,339,300 marks) to the extension fund. A section of veterinary pathology will find a place in the new buildings.

LIVINGSTONE COLLEGE.—At the Commemoration Day proceedings at Livingstone College on Saturday, June 11th, a reception was held to which a number of foreign delegates, now in England for the World's Missionary Conference at Edinburgh, were invited. The Principal, Dr. C. F. Harford, after welcoming the guests, spoke of the aims of Livingstone College. He emphasised the necessity of a medical training for those who go abroad as missionaries, not only for the care of their own personal health, but to enable them to treat the natives amongst whom they work. He drew attention to the importance of the training at Livingstone College as enabling students to acquire some knowledge of tropical diseases. He then proceeded to read an address which had been specially written for the occasion by Professor Ronald Ross, who was unfortunately unable to be present. In this address reference was made to the remarkable development of science in connexion with malaria during the past decade, and to the necessity for medical missionaries adopting systematic measures against the spread of this disease. Professor Ross referred to the various prophylactic measures such as drainage of stagnant waters, removal of water weeds in which mosquitoes live, and treatment of the water by

larvicides or oil. The address concluded with the advice that every missionary going to a tropical country should take a course of study in tropical medicine.

AMONG those called to the Bar at Gray's Inn on June 8th was Dr. J. Malcolm Mason, consulting medical officer to the Dominion of New Zealand.

SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—The distribution of prizes will take place at 17, Bloomsbury-square, London, on June 23rd, at 3 P.M.

THE Directors of the London, Brighton, and South Coast Railway Company have appointed Mr. William Turner, M.S. Lond., F.R.C.S. Eng., medical officer of the company in succession to the late Mr. William Rose.

LITERARY INTELLIGENCE.—Messrs. Cassell and Co. announce for immediate publication a new and enlarged edition of "Difficult Labour," by Dr. George E. Herman. "A Manual of Chemistry" by Dr. A. P. Luff and Mr. Hugh Candy is also about to appear in a new edition.

UNIVERSITY OF CAMBRIDGE.—The Special Board for Medicine of the University of Cambridge has recommended that the degree of M.C. be conferred on Mr. Herbert J. Paterson, M.A., M.B., B.C., F.R.C.S. Eng., of Trinity College, without examination, in consideration of his contributions to the science and art of surgery.

THE NATIONAL ASSOCIATION FOR THE PREVENTION OF CONSUMPTION AND OTHER FORMS OF TUBERCULOSIS.—A special appeal committee, under the chairmanship of Lord Derby, has been appointed by this association to collect funds for an educational campaign. The movement is intended to familiarise the general public with the various preventive measures which may be adopted against tuberculosis. The association means to organise travelling tuberculosis exhibitions, and to place on the road caravans containing the necessary outfits for lantern exhibitions; and it will also arrange for popular lectures to be delivered, for the institution of a general information bureau for the benefit of the public, and for the distribution of leaflets. The committee states that the total expenses of such a programme as this will amount to nearly £5000 annually, and asks the public for generous support in raising the necessary funds.

CHICHESTER INFIRMARY.—The debt of £1488 existing at the end of the last financial year on the West Sussex, East Hants, and Chichester Infirmary, or, as it is perhaps better known as, the Chichester Infirmary, has now been liquidated by contributions either given or promised, chiefly in answer to the appeal sent out by the mayor of the cathedral city. The late King Edward took a great interest in the West Sussex institution, visiting it during his frequent sojourns in the neighbourhood. During his last visit towards the end of last year His Majesty graciously consented to consider the question of permitting the designation of "Royal" to be used, provided the institution were made free of debt. Sir Frederick Treves, at the late King's suggestion, carefully examined the infirmary and found the interior entirely out of date and its structural condition not creditable to the county. "Medical and surgical science," Sir Frederick Treves said in his report, "has made immense strides in the last 25 years, but this hospital has certainly not moved with the times, since it remains practically as it was some 30 years ago. ..... Its condition is most unsatisfactory. Full justice cannot be done to the patients on the one hand, nor to the medical staff on the other. The work done by the staff has been admirable, but it has been done under conditions which ought not to exist in these days, and in the face of difficulties with which they should not be hampered." Sir Frederick Treves strongly advised an extensive reconstruction to convert the building into a modern hospital and to bring it in line with the other hospitals of like standing in the country. It is now proposed to bring the hospital thoroughly up to date at a cost of £20,000 as a memorial to King Edward. Although this proposal is quite in its infancy one-half of the sum required has been promised by an anonymous donor. The Chichester Infirmary can date back as far as 1792, when it commenced its work in a small house with one nurse. Now in the course of one year it admits 124 medical cases, treats 445 surgical cases, relieves 1990 out-patients, and performs 522 major operations.

THE honorary degree of D.Sc. has been conferred on Professor W. Osler, M.D., F.R.S., by the University of Leeds.

Professor and Mrs. Karl Pearson and the staff of the Biometric and Galton Eugenics Laboratories are holding an At Home on Friday evening, June 24th, at University College, Gower-street, when the laboratories will be open to their visitors.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The dates of the Professional and Gaskell Prize Examinations have been altered as follows: Professional Examination, July 6th, to be held in London, Edinburgh, and Dublin; Gaskell Prize Examination, July 7th, to be held in London only. The egistrar is Dr. Alfred Miller, Hatton Asylum, near Warwick.

EAST SUFFOLK AND IPSWICH HOSPITAL.—The new President of the Ipswich Hospital, Dr. J. H. Bartlet, held a reception on June 11th, to which some 1400 of the subscribers to the Improvement Fund of that institution were invited, in order to inspect the improvements and additions which have recently been made. The alterations took three years to carry out and cost nearly £20,000; they include the erection of a new administrative block, a new operating theatre, an isolation hospital, and various new outbuildings. A cordial vote of thanks was offered to the subscribers who attended the reception by the board of management, and the chairman congratulated Dr. Bartlet on his appointment as President of the institution.

MUNIFICENT GIFT TO A SANATORIUM.—The bi-annual meeting of the Poor Children's Holiday Association and Rescue Agency was held on May 28th in the sanatorium at Stannington, Northumberland. Commenced a few years ago with a view of obtaining a little fresh air for the poor children of the Newcastle-on-Tyne district by means of day trips to the seaside, the work has extended and now includes the management of a sanatorium for tuberculous children, a convalescent home for children after general diseases, and a farm worked by lads in their teens who have been rescued from a street life. The produce of the farm is utilised in the two other buildings, also on the farm land at Stannington, and so excellent are the arrangements that the farm is a concern which pays for itself. As to the more particular medical aspects of the work, the sanatorium for the tuberculous will accommodate 50 children at present. In the course of remarks from the chair at the meeting the Lord Mayor (Sir William Stephenson) stated that it had been considered desirable that the number of beds should be increased to 100; a good many of these beds it was proposed to devote to local tuberculosis in the way of bone and gland affections. This would mean increased expenditure and funds, and he announced then several subscriptions, including the endowment of a cot. The Lord Mayor's words had a splendid sequel. A few days after the above meeting some correspondence was printed in the local press showing that the Lord Mayor had generously offered to defray the whole expense of building and equipping the suggested additional buildings for the beds above mentioned, some £4000 in all. This munificence will doubtless stimulate the public to help in the extra maintenance expense. It is interesting to note that the concrete blocks to be used in the building operations are being made by the boys on the spot.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reassembling of Parliament.

PARLIAMENT reassembled on Wednesday, June 8th, after the "spring recess." The holidays as originally planned were interrupted by the death of King EDWARD, but the vacation was afterwards prolonged into June with the intention of silencing current political controversies during the first weeks of the new reign.

Midwives Act Amendment Bill.[1]

The following amendments to the Midwives Act Amendment Bill are desired by the Midwives' Institute, which body has approached the late Lord President of the Council, Viscount WOLVERHAMPTON, and has made an eloquent representation of the views indicated by the suggested alterations:—"Clause 1 (1) c.: Read. Two persons, one of whom

[1] See leading article in THE LANCET on p. 1699.

shall be a midwife, to be appointed by the Incorporated Midwives' Institute, and one person to be appointed by the Royal British Nurses' Association. Clause 7, line 29: For 'March' read 'January.' Clause 11 (1): Omit. Clause 11 (2), line 31: For '48 hours' read '7 days.' Clause 13 line 11: After 'training' insert 'and make grants in aid of maintenance.' Clause 15: Omit. Clause 17 (1), line 3: Instead of 'the Board of Guardians of the Poor Law Union' read 'the local supervising authority of the county or county borough.' Clause 17 (2) and (3): Omit."

A Revised Anthrax Order.

The returns made to the Board of Agriculture show an increased number of cases of anthrax. It has been stated in the House of Commons that three persons have died in three weeks from the disease contracted from the carcasses of animals affected with the disease. The Board of Agriculture is therefore considering the issue of a revised Anthrax Order at an early date which will be designed to secure a more uniform and efficient method of diagnosis of the disease amongst animals.

Clinical Chairs at Glasgow.

The Glasgow University Chair of Clinical Medicine and Chair of Clinical Surgery Confirmation Bill and the St. Mungo's College Confirmation Bill have been read a second time in the House of Lords.

The Census.

In the Census of 1911 certain new information is to be collected bearing on the vital statistics of the nation. Mr. BURNS, the President of the Local Government Board, in his speech on the second reading of the Census (Great Britain) Bill, intimated that the authorities concerned were making provision that information should be obtained from married couples as to the duration of marriage, and as to the number of children born of each marriage. Mr. BURNS believed that the figures so furnished would give information to the fertility of different classes of the community, and would have a bearing upon certain questions connected with infantile mortality. He mentioned that since 1851 the birth-rate had dropped from 34 to 26 per 1000, and in the same period there had been a fall in the death-rate from 23 to 15 per 1000. Infantile mortality was practically stationary until five years ago. Since that time the rate had fallen from 145 to 109 in England and Wales, and from 144 to 107 in London.

Experiments on Living Animals.

A return has been ordered by the House of Commons of the experiments made on living animals during the year 1909 under licences granted under 39 & 40 Vict., c. 77, distinguishing the nature of the experiments.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 8TH.

Medical Establishments in the Navy.

The House considered in committee of supply a vote of £263,900 for medical services and medical establishments in the Navy.

Lord CHARLES BERESFORD said that the First Lord of the Admiralty in his annual statement had mentioned that questions of very great importance and far-reaching scope would be brought before the committee which the Admiralty very wisely ordered to investigate affairs connected with the Naval Medical Service. The First Lord had said that he would let the House have the report of the committee as soon as possible, and he (Lord C. Beresford) hoped this would be done. He thought that it was of the highest importance that the Navy Medical Service should be organised and ready for war. Unless surgeons and staff were organised in time of war it would be a matter of very serious consequences. One shell could kill a great number of people and also wound perhaps 60 or 70 men, so a proper medical staff should be quite ready to go on duty if war were suddenly declared Since the South African war the army had recognised the importance of this point. There was a school at Millbank which prepared medical officers for duties in which they could not otherwise have much practice in case of sudden emergency of war. He hoped that the First Lord of the Admiralty would announce that some sort of naval medical school, something similar to that which had been provided for the army, would be provided for the navy. He found that on the peace establishment as stated in the Navy List there ought to be 574 staff surgeons, and, as far as he could make out, the actual numbers were 60 or 70 short on the peace establishment. That was a very serious position. He hoped that the First Lord would say what his intentions were in regard to it. There were only 34 reserve volunteers on the Navy List. He thought that the number of these volunteers might be increased by inviting the surgeons of mercantile ships to become surgeons for the Royal Navy in reserve. He believed that they would be very glad to do so, and there would be the advantage that these men were accustomed to be at sea. Another point on which he touched was the status of the sisters in the naval hospitals. Since their advent the naval medical hospitals had improved enormously, and the First Lord would do well to put these sisters on terms similar to those given to the sisters in the army service. They ought not to feel that they were underpaid in comparison with the army sisters. The noble lord went on to urge the necessity of building two hospital ships. It was essential that they should be provided in these days when modern weapons and high explosives would produce a tremendous sacrifice of life and inflict a great number of wounds. These ships would perhaps get to the place where they were wanted within a few hours. If hospital ships were properly equipped with stores and a staff with an adequate number of surgeons, hundreds and hundreds of men's lives would be saved. An ordinary merchant ship could not be converted into an efficient hospital ship.

Mr. ASHLEY urged that the remuneration of sisters should be increased. He thought the suggestion of the noble lord that civil surgeons should be retained for medical service in the Navy in time of war was excellent, because the surgeons who were in the merchant service were just the men who would be thrown out of employment when war broke out. They were the very men who were familiar with the sea.

Mr. GIBSON BOWLES admitted that in war-time considerably more surgeons were wanted than were now in the service of the Navy. He did not think that an additional number of surgeons such as would suffice would be obtained from the merchant service. Ships in the merchant service, except the great liners, did not carry surgeons, and they would be required in war-time as well as in peace. He did not agree that in time of war passenger steamers would be stopped from running. Therefore the Admiralty could not look for any great increase in that direction.

Lord CHARLES BERESFORD: I am afraid that I failed to make my remarks clear. What I meant was that those who had already served as surgeons—and there is a very great number—are men I desire to see in the Reserve. Of course, they would only form a part of the large number required.

Mr. GIBSON BOWLES: I follow the noble lord in what he says. The honourable Member went on to say that as a matter of fact medical men who had served for a time in the merchant service generally took a country practice which they would not readily be induced to leave. The suggestion of the noble lord had something in it, but his (Mr. Bowles's) criticism was that very few surgeons could be obtained from that source. He wanted to know what arrangements the Admiralty had already made to increase the number of surgeons in time of war.

Mr. LEE advocated the provision of hospital ships.

Mr. MCKENNA (First Lord of the Admiralty) said that he had carefully listened to the speeches and could not help feeling a certain amount of satisfaction in recognising that every point of criticism that had been raised had, in fact, been dealt with by the committee which inquired into the Medical Service. He regretted that it had not been possible for him to publish even a part of the report before bringing on this vote. He hoped that honourable Members would accept his statement that not a single point which had been raised in the discussion had been overlooked in the inquiry which had taken place. The recommendations of the committee were at this moment engaging the consideration of the Board of Admiralty, and he was not going too far when he said that not only the bulk of them had been accepted but provisions would be made in order that they might be carried into effect. Of course, some points which had been referred to were matters upon which the Admiralty were not the only authority which had to be consulted. He was not now speaking of hospital ships, but when the Admiralty had to deal with questions relating to nurses and the members of the Medical Service and the raising of the standard of existing salaries there was another authority which had to be consulted. Consequently he was not in a position to make any promise upon any such point. But certainly the recommendations of the committee of inquiry would receive from the Board of Admiralty the recognition which they undoubtedly deserved.

Lord CHARLES BERESFORD: Is the increase of salaries a recommendation?

Mr. MCKENNA: I hope the noble lord will not press me as to particular points in the committee's report. It is far better that we should not deal with a part of it, but I hope to be able to give some information shortly. He would remind the noble lord, who referred to the experience gained in the South African war, that Sir Alfred Keogh was a member of the committee of inquiry, which had had the advantage of the experience and knowledge which he had gained in the army. The question of a hospital ship was raised, and he (Mr. McKenna) agreed with the observations of honourable Members upon the superiority of the hospital ship over the converted merchant ship. Here, again, he was not willing to pledge himself as to what the estimates of the ensuing year would be. He could, however, assure honourable Members that it was the present intention of the Board of Admiralty to include a sum in next year's estimates for the building of a hospital ship. He could not undertake that the Board should build two at once, but he hoped next year to make a start and build one. He trusted that when it was built it would give such satisfaction that a second would shortly follow. He believed that he had touched on the various points which had been raised.

The vote was then agreed to.

Reports of School Medical Officers.

Mr. RAMSAY MACDONALD asked the President of the Board of Education whether it was still the intention of the Department to keep as confidential the information derived by the medical officer from the inspection of school children; and if so, whether he had considered the impropriety of allowing authorities to appoint as medical inspectors persons who already held the office of public vaccinator.—Mr. RUNCIMAN wrote in reply: The Board remains at present of opinion that it is desirable that these reports should be regarded as confidential. As regards the second part of the question, I must refer the honourable Member to the answer he received from my right honourable friend on March 9th.

MONDAY, JUNE 13TH.

Malta Fever.

Mr. CHANCELLOR asked the Under Secretary of State for the Colonies whether it had been decided to appoint a new Mediterranean Fever Commission for the purpose of investigating the manner in which goats became infected, seeing that it was officially stated in evidence before the Royal Commission on Vivisection that no goats had been infected by the alleged Malta fever germ, that it did not give rise to any ill-health, and that it did not give rise to any fever; and, seeing that, according to official statistics, Malta fever had been practically extinguished from among the British garrison before the order of July 1st, 1906, for the prohibition of goats' milk was issued, what public ends were sought by spending time and public money in prosecuting a research which appeared to have no bearing whatever upon the question of Mediterranean fever.—Colonel SEELY replied: It has been decided to appoint another Commission for the investigation of the question to which my honourable friend refers. The evidence of Sir David Bruce before the Royal Commission on Vivisection, to which allusion is made, was to the effect that the goats, though their blood and milk contained the micrococcus of Malta fever, and they were therefore capable of infecting man with the disease, remained themselves apparently healthy. Such tolerance of disease germs is, the Secretary of State is advised, a common physiological phenomenon. My honourable friend is mistaken as to the statistics of admissions to hospital among the troops

for Malta fever. In 1905 there were 643 such admissions; up to July, 1906, when the prohibition of the use of goats' milk was issued, there were 123, for the remainder of the year 40; for 1907, 11; 1908, 5; 1909, 1; and 1910 to date, 0. As it is not practicable to prohibit the use of goats' milk among the civil population it remains to investigate the causes of the infection of goats and, if possible, to remove them.

The Notification of Pulmonary Phthisis in Scotland.

Mr. WILLIAM YOUNGER asked the Lord Advocate how many local authorities in Scotland in burghs and counties, respectively, had added pulmonary phthisis to the list of compulsory notifiable diseases under the Infectious Diseases Notification Act, 1889, and how many cases were notified in 1909.—Mr. URE replied: The Local Government Board has approved the orders of 41 burghal local authorities and of 33 landward local authorities extending the provisions of the Act referred to by the honourable Member to pulmonary phthisis. 1902 cases were notified in the year 1909.

TUESDAY, JUNE 14TH.

Emergency Cases under the Midwives Act.

Mr. HENRY WALKER asked the President of the Local Government Board, with reference to the medical man called in on an emergency under the statutory rules, in pursuance of the Midwives Act, and to the fact that payment was now being made to him out of the rates in some places under the Public Health Act, 1875, and in others under the Poor-law Amendment Act, 1848, whether, in the absence of any application for consent by or on behalf of the patient or her husband, such a payment out of the rates to the medical man, whether under the one Act or the other, was treated as parochial relief; whether, as a matter of fact, the patient and her husband in respect of attendance on the former of whom the medical man was thus paid under the Poor-law Amendment Act, 1848, were in some unions, but not in others, entered and classed as paupers in receipt of medical relief; whether, when the payment was made under the Public Health Act, 1875, the patient and her husband were everywhere spared from any demoralising contact with the Poor-law and were not subjected to visits from the relieving officer; what authority in each locality decided whether the payment out of the rates to the medical man should be made under the one Act or the other; what authority determined whether the patient and her husband in those cases in which no application or consent was made by them or on their behalf should or should not be regarded as in receipt of parochial relief and be dealt with as paupers; and whether, in view of the diversity of opinion and of action among local authorities in this matter, he would issue a circular clearing up the legal position.—Mr. BURNS replied: As I informed my honourable friend in answer to his question of April 28th last, there are two or three cases in which payments of the kind referred to have been made under Section 103 of the Public Health Act, 1875. Such payments would not be parochial relief. Some boards of guardians have, I believe, made similar payments under Section 2 of the Poor-law Amendment Act, 1848, but I have no information as to the practice in the matter. It does not seem to me to be necessary to adopt the course suggested in the last part of the question. I may remind my honourable friend that a Bill has been introduced on behalf of the Government in another place which contains a provision on this subject, and I can assure him that the points to which he has drawn attention will not be lost sight of.

Dr. ADDISON: With regard to the Bill introduced by the Lord President of the Council, will he see his way to substitute the local supervising authorities for the boards of guardians?—Mr. BURNS: I have already told my honourable friend that the points to which he has drawn attention will not be lost sight of.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.

A Text-book of Medicine. By G. Dieulafoy. Authorised English Translation from the Fifteenth Edition of "Manuel de Pathologie Interne." By V. E. Collins, M.D. Lond., M.R.C.S., L.R.C.P., and J. A. Liebmann, Ph.D., M.A., LL.D. In two volumes. Price of the complete work, 25s. net.

Organic and Functional Nervous Diseases. A Text-book of Neurology. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Third edition, thoroughly revised. Price 25s. net.

Elements of Pharmacy, Materia Medica, and Therapeutics. By Sir William Whitla, M.A., M.D., LL.D. Ninth edition. Thirty-second thousand. Price 9s. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

The Dental Directory, 1910. Price 2s. 6d. net.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

A Manual of Operative Surgery. By Sir Frederick Treves, Bart. G.C.V.O., C.B., LL.D., F.R.C.S., and Jonathan Hutchinson, F.R.C.S. Third edition. In two volumes. Vol. II. Price 36s. net.

CHURCHILL, J. AND A., London.

The Diseases of Children. By James Frederic Goodhart, M.D., LL.D. Aberd., F.R.C.P. Ninth edition. Edited by George Frederic Still, M.A., M.D., F.R.C.P. Price 15s. net.

Uric Acid in the Clinic. A Clinical Appendix to "Uric Acid as a Factor in the Causation of Disease." By Alexander Haig, M.A., M.D. Oxon., F.R.C.P., assisted by Kenneth G. Haig, L.R.C.P. Lond., M.R.C.S. Eng. Price 5s. net.

Post-Mortem Manual. A Handbook of Morbid Anatomy and Post-mortem Technique. By Charles R. Box, M.D., B.S., B.Sc. Lond., F.R.C.P. Lond., F.R.C.S. Eng. Price 6s. net.

FOOD AND COOKERY PUBLISHING AGENCY, London.

Ideal Breakfast Dishes, Savouries, and Curries. By C. Herman Senn, G.C.A. Price 1s. net.

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The Oxford Medical Publications. A System of Medicine. By Eminent Authorities in Great Britain, the United States, and the Continent. Edited by William Osler, M.D., F.R.S., assisted by Thomas McCrae, M.D., F.R.C.P. Lond. Vol. VII. (last): Diseases of the Nervous System. Price to subscribers for seven volumes, 24s. net per volume; or 30s. net per single volume.

Oxford Medical Publications. Fevers in the Tropics; their Clinical and Microscopical Differentiation, including the Milroy Lectures on Kālā-Azār. By Leonard Rogers, M.D., F.R.C.P., F.R.C.S., B.S., I.M.S. Second edition. Price 21s. net.

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The Territorial Year-Book and Directory, 1910. Price 1s. net.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London, and FROWDE, HENRY, London, for the EARLY ENGLISH TEXT SOCIETY.

Early English Text Society. Original Series, 139. Treatises of Fistula in Ano, Hæmorrhoids, and Clysters. By John Arderne. From an Early Fifteenth Century Manuscript Translation Edited, with Introduction, Notes, &c., by D'Arcy Power, F.R.C.S. Eng. 1910. Price 15s.

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Brassworkers of Berlin and of Birmingham. A Comparison. Price 6d. net.

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Where Shall She Live? The Homelessness of the Woman Worker. Written for the National Association for Women's Lodging-Homes. By Mary Higgs and Edward E. Hayward, M.A. Price, paper, 1s. 6d. net; cloth, 2s. 6d. net.

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The Oxford Colleges. By Elsie M. Lang. Price 1s. net.

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A Handbook for Nurses. By Sydney Welham, Resident Medical Officer, Charing Cross Hospital. Price 3s. 6d. net.

REBMAN, LIMITED, London.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I., March, 1910. Price £2 net per annum (4 vols.), or 12s. each single volume.

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Pulmonary Tuberculosis and its Complications. By Sherman G. Bonney, A.M., M.D. Second edition, thoroughly revised. Price 30s. net.

Medical Electricity and Röntgen Rays, with chapters on Phototherapy and Radium. By Sinclair Tousey, A.M., M.D. Price 30s. net.

The Pathology of the Living and Other Essays. By B. G. A. Moynihan, M.S. Lond., F.R.C.S. Price 10s. net.

SCIENTIFIC PRESS, LIMITED, London.

The Rearing of Children. A Practical Handbook for Mothers. By J. P. O'Hea, M.B. Lond., F.R.C.S. Eng. Price 2s. net.

SWAN SONNENSCHEIN AND CO., LIMITED, London. (DUTTON, E. P., AND CO., New York.)

The Signs and Symbols of Primordial Man. Being an Explanation of the Evolution of Religious Doctrines from the Eschatology of the Ancient Egyptians. By Albert Churchward, M.D., M.R.C.P., M.R.C.S., F.G.S., P.M., P.Z. 30°. Price 25s. net.

UNIVERSITY PRESS, Manchester. (SHERRATT AND HUGHES, 33, Soho-square, London.)

The House Fly. *Musca domestica*, Linnæus. A Study of its Structure, Development, Bionomics, and Economy. By C. Gordon Hewitt, D.Sc. Price 20s. net.

WALKER, JOHN, AND CO., LIMITED, London.

The Graphic Atlas of the World. Edited by J. G. Bartholomew, LL.D., F.R.S.E., F.R.G.S., &c. Price, in Great Britain, 5s. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Diseases of the Colon and their Surgical Treatment. (Founded on the Jacksonian Essay for 1909.) By P. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab. Price 10s. net.

YEAR-BOOK PRESS (c/o SWAN SONNENSCHEIN AND CO., LIMITED, London).

The Girls' School Year-Book (Public Schools). Fifth Year of Publication, April, 1910, to April, 1911. Price 2s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BRADFORD, J. ROSE, M.D. Lond., F.R.S., has been appointed Holme Lecturer in Clinical Medicine at University College Hospital Medical School.

DAVIES, TREVOR BERWYN, M.B., B.S., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant at University College Hospital.

DERRY, D. E., M.B., Ch.B. Edin., has been appointed Assistant in the Department of Anatomy and Curator of the Anatomical Museum at University College, London.

FALCONER, A. W., M.D. Aberd., has been appointed Anæsthetist to Aberdeen Royal Infirmary.

GRAHAM, LEWIS, M.B., B.S. Lond., L.R.C.P., M.R.C.S., has been appointed Demonstrator of Anatomy in the University of Birmingham.

HART, BERNARD, M.B. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Lecturer in Mental Diseases and Mental Physiology at University College Hospital Medical School.

JOHNSTON, JOHN, M.B., Ch.B. Aberd., has been appointed Assistant Anæsthetist to Aberdeen Royal Infirmary.

JONES, ALBERT, M.B., B.S. Liverp., has been appointed an Inspector of School Children for Lancashire.

MARTIN, E. K., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Demonstrator in Anatomy at University College, London.

PARSON, AGNES A., M.B., B.S. Lond., has been appointed an Inspector of School Children for Lancashire.

PEARCE, GEORGE HARPER, L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H. Camb., Medical Officer of Health, Borough of Batley, has been appointed in addition Medical Officer of Health to the Urban District of Heckmondwike.

SHORE, L. E., M.D., B.C. Cantab., has been appointed University Lecturer in Physiology in the University of Cambridge.

STEADMAN, F. ST. J., M.R.C.S., L.R.C.P. Lond., L.D.S. Eng., has been appointed Honorary Assistant Dental Surgeon to the National Dental Hospital.

WHITEHOUSE, W. H., M.D. Durh., D.P.H. Edin., Barrister-at-Law, has been appointed Medical Officer of Health for the Borough of Aston and Medical Superintendent of the Fever and Small-pox Hospitals.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Each for six months.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Special Clinical Assistants. Salary at rate of £100 a year. Also Dental Surgeon. Also House Surgeon for six months. Salary at rate of £20 per annum, with board and residence.

BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and washing.

BETHLEM HOSPITAL.—Resident House Physician, unmarried, for six months. Salary at rate of £25 per quarter, with board and washing.

BIRMINGHAM, CITY FEVER HOSPITAL, Lodge-road.—Medical Superintendent, unmarried. Salary £250 per annum, with board and residence.

BIRMINGHAM EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £250 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, WARWICKSHIRE COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary £250 per annum.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, London, S.W.—Senior and Junior House Surgeon for six months. Salaries £80 and £70 per annum respectively.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary £50 a year, with board and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.

DONCASTER ROYAL INFIRMARY AND DISPENSARY.—House Surgeon, unmarried. Salary £125 per annum, with board and residence.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Physician. Salary at rate of £60 per annum, with board, residence, and washing. Also Ten Clinical Assistants.

FRIMLEY, BROMPTON HOSPITAL SANATORIUM.—Assistant Resident Medical Officer. Salary £150 per annum, with board and residence.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and laundry. Also Junior House Physician. Salary at rate of £35 per annum, with board, lodging, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HARTLEPOOL, HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary £20 for six months, with rooms, board, and washing.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HEREFORD COUNTY AND CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, laundry, &c.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Radiographer. Salary 50 guineas per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board and residence. Also House Physician and House Surgeon, both unmarried, for six months. Salary in each case £30, with board, residence, and washing.

HULL, ROYAL INFIRMARY.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and washing. Also Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

JARROW-ON-TYNE, PALMER MEMORIAL HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and residence.

LEEDS HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for seven months. Salary at rate of £50 per annum, with board.

LEEDS UNIVERSITY.—Demonstrator of Pathology. Salary £200 per annum.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

LONDON LOCK HOSPITAL.—House Surgeon to Female Hospital, Harrow-road, W. Also House Surgeon to Male Hospital, 91, Dean-street, Soho. Salary in each case £100 per annum, with board, lodging, and washing. Also Anæsthetist.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary £100 per annum.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Surgeon. Also Pathologist and Registrar. Salary £75 per annum

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants for six months.

NATIONAL DENTAL HOSPITAL AND COLLEGE, Great Portland-street, W.—Anæsthetist.

NEWCASTLE, COUNTY WICKLOW, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Senior Resident Medical Officer. Salary £300 per annum, with house accommodation.

NEW HOSPITAL FOR WOMEN.—Medical Women as Joint Pathologist, Anæsthetist, Senior Assistant, and Clinical Assistant for Saturdays.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon (female) for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

PRESTON ROYAL INFIRMARY.—Locum Tenens Junior House Surgeon for about ten weeks. Salary £3 3s. per week, with board, lodging, and washing.

READING, BERKSHIRE EDUCATION COMMITTEE.—Assistant Medical Inspector of Schools. Salary £300 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square, W.C.—House Surgeon for six months.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.

TEIGNMOUTH HOSPITAL, S. DEVON.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £30, with board, lodging, and laundry.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants. Also Three Casualty Officers.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Surgeon.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Congleton, in the county of Cheshire; and at Clevedon, in the county of Somerset.

THE Secretary of State for the Home Department, Whitehall, S.W., gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 7 and 8, attached more particularly to the Salford County Court in Circuit No. 7 and the Manchester County Court in Circuit No. 8.

Births, Marriages, and Deaths.

BIRTHS.

ADDINSELL.—On June 12th, at St. James's-road, Surbiton, the wife of Howard Addinsell, L.R.C.P., M.R.C.S., of a son.

BATES.—On June 9th, at Vicars-hill, Ladywell, S.E., the wife of George Llewellyn Bates, M.R.C.S., L.D.S., Harley-street, W., of a son.

HAWKS.—On June 13th, at Brockenhurst, Hants, to Mr. and Mrs. F. Swanson Hawks—a son.

STEPHENSON.—On June 6th, at The Limes, West Haddon, near Rugby, the wife of Wm. Arthur Stephenson, M.R.C.S.Eng., L.R.C.P.Lond., of a son.

MARRIAGES.

CAMERON—FRASER.—On June 7th, at St. Luke's Parish Church, Edinburgh, Ewan Gordon Cameron, M.R.C.S., L.R.C.P., to Sarah, eldest daughter of the late John Fraser, M.D., Parkburn, Kilsyth.

FAWKES—FUNNELL.—On Saturday, June 11th, at St. Olave's, Finsbury Park, London, by the Rev. Wynn Healey, M.A., Marmaduke Fawkes, M.B., B.S. Lond., M.R.C.S., L.R.C.P., of Midhurst, Sussex, eldest son of Mr. and Mrs. F. Attfield Fawkes, of "Hillside," Felixstowe, to Linda, elder daughter of Mr. and Mrs. Edward Funnell, formerly of Audisque, St. Etienne-au-Mont, France.

HOPKINS—WILBERFORCE.—On June 9th, at St. Oswald's Church, Fulford, York, by the Rev. W. B. Leighton Hopkins, M.A., Rector of Lavenham, brother of the bridegroom, assisted by the Rev. Canon John Watson, M.A., Sub-Dean of York Minster, and the Rev. T. E. B. Guy, M.A., Vicar of the parish, Charles Leighton Hopkins, B.A., M.B., B.C. Cantab., Medical Superintendent, York City Asylum, son of the late Canon Hopkins, B.D., Vicar of Littleport, Ely, and of Mrs. W. Bonner Hopkins, St. Leonards-on-Sea, to Hilda, daughter of the late W. W. Wilberforce, Millfield, York, and Mrs. Wilberforce, Fulford, York.

MACTIER—MEIKLEJOHN.—On June 9th, at the Parish Church of St. Andrews, William Butterworth MacTier, M.B., C.M., to Marjory, youngest daughter of the late Professor J. M. D. Meiklejohn, of St. Andrews University.

STALKER—OBERDORFER.—On June 9th, at the Parish Church, Didsbury, Manchester, by the Rev. E. Abbey Tindall, M.A., Rector of the parish, William Stewart Stalker, M.B., Ch.B., D.P.H., younger son of John Stalker, Esq., Logiealmond, Perthshire, to Alice Oberdorfer, M.B., Ch.B., D.P.H., elder daughter of Mrs. Oberdorfer, Clairemont, Atwood-road, Didsbury, and the late E. Oberdorfer, Esq., Didsbury.

DEATHS.

BURNETT.—On June 13th, Charles Burnett, M.B., of Biggleswade, aged 72 years.

CANE.—On May 20th, at his residence, 343, Fore-street, Edmonton, London, N., Francis Edward Cane, L.R.C.P., L.R.C.S. Edin., D.P.H. Camb., Divisional Surgeon, Metropolitan Police, the beloved husband of Helen M. Cane, son of the late Alderman Robert Cane, M.D., of Kilkenny, and brother of Lieut.-Colonel Robert Cane, R.A., Lee, S.E.

SHARP.—On June 6th, at Fishpond Drive, Nottingham, aged 42 years, Arthur John Sharp, M.D., F.R.C.S.

SMYTH.—On June 8th, at Abbey House, Tavistock, Devon, after an operation for appendicitis, Thomas E. Smyth, M.D. T.C.D., in his 47th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

EPILEPTOID EXPLOSIONS.

A TRAIN steams into a central station like that of Milan (writes an Italian correspondent) and from among the crowd of alighting passengers a man, evidently a prey to cerebral commotion, is seen brandishing a knife with lethal intent, and before the railway servants can secure him has already wounded two or more of his fellow-travellers and dealt a mortal blow to a third. In a military centre like that of Pisa a linesman rises in the night and discharges from a loaded rifle that happens to be within reach a succession of shots which cost several of his sleeping comrades their lives. On board a destroyer in Sicilian waters one of the crew develops a sudden antipathy to his superior officers and in answer to an appeal to control himself takes a header into the sea. His brother mariners leap down after him with intent to save him, but their efforts only result in a violent struggle in the waves, the would-be suicide doing his utmost to involve them in the fate he designed for himself, till, with the aid of a rope flung from the ship, he is brought safely on deck and, still violent and aggressive, is landed at Brindisi and taken to the asylum, where he is reduced to impotence in a strait waistcoat. While this is happening on the high seas, in the barracks near Civita Vecchia a common soldier seizes a rifle, discharges it in front of a house, and again at the room where the officers are sitting at mess. No fatal result has yet occurred, but two females, leaning out of a window on hearing the detonations, are at once aimed at by the soldier, who kills one of them and gravely (it was feared mortally) wounds another. By this time two corporals pounce upon him from behind, and, having disarmed and secured him, convey him to the hospital, where he is found to have suffered from melancholia, with an anamnesis of epilepsy, and put under coercion and treatment accordingly. Cases like these may from week to week be culled from the Italian newspapers with such frequency that not only the citizens, but even visitors from abroad, are beginning to ask themselves how far it is safe to venture near a military barrack, or a railway station, or a crowded piazza, where at any moment an "epileptoid explosion" may occur to the danger, often resulting in the death, of the unsuspecting bystander or wayfarer. The truth is that the often-demanded, perfunctorily recognised surveillance over the youth of Italy, whether entering school life or enrolled for military service, has yet to be initiated and systematically carried out on the lines recommended, now these 25 years, by the Subalpine medical authorities, with Lombroso at their head. That able pioneer, notwithstanding all the "defects" (neither few nor small) "of his qualities," struck a sagacious and salutary note when he urged on the cities and communes an early, thorough, and well-organised examination of the children before these were allowed to mingle together in the school-room or the playground, testing them anthropometrically and pathologically, while not losing sight of their family history, and according to the findings thus arrived at by the duly qualified expert segregating the healthy from the unsound and placing the latter under special conditions, so as to give them a fair chance of normal development, while securing the former from the risk of contamination (moral even more than physical) at their hands. The same process, pleads the Subalpine school, should be resumed after the age of puberty or at adolescence, particularly on admitting the recruit to service in the army and navy or the youth in general to any *métier* in which they may be so employed as to come into daily contact with their fellows. Another recommendation from the same source, though admittedly more difficult to give effect to, is the restriction of publications tending to familiarise the young with crime. The imitative instinct, the ready response to suggestion, is too marked a feature in the budding mind (particularly of the less normally developed or constituted) not to make the perusal of the "cronaca nera," as the police reports are called in Italian journals, a truly dangerous practice in youth or even in adult age. These journals, to judge from their tables of contents placarded at every coign of 'vantage, seem to subsist on sensational news, murders, suicides, abductions, frauds, all on a highly pronounced and piquant scale, being apparently the chief attraction for their readers. Even worse are the comic prints, dealing (as is usual in Latin countries) with breach of the conjugal tie or premature indulgence in the marital privilege, prints eagerly scanned by children of tender years at shop windows, and inciting to excesses which explain the appalling prevalence of "malattie celtiche" in Italy with the sequelæ that crop out in the protean forms of disease inherited and acquired—forms conspicuous among which are the "epileptoid" above referred to. Italy is honourably distinguished among countries constitutionally governed by the large number of physicians, surgeons, and sanitarians in her Senate and Chamber of Deputies. Is it too much to expect that she should also distinguish herself by active and effective legislation towards the abatement of evils, physical and social, in which (to use the phrase of one of her professional authorities) she maintains a "sinister priority"?

SCHOOL CHILDREN AND MEDICAL CHARITIES.

AN excellent institution is that adopted every year at Brighton and Hove, where, under the auspices of the Teachers' Association, a collection is made in the various schools on behalf of the local medical charities. Invariably at the time the collection is being made the teachers expound upon the value of the medical charities and the magnificent work they are doing, while the ingathering of the coppers instils upon the minds of the children a sense of duty towards the many medical agencies, a sense which will grow with them. The annual collection at the Brighton and Hove and district this year amounted to just over £145, which sum has been distributed as follows: 20 guineas each to the Sussex County, Children's, Throat and Ear, and Eye Hospitals; 14 guineas to the Brighton Dispensary; 10 guineas each to the Brighton Dispensary (Hove Wards) and the Queen's Nurses; 6 guineas each to the Women's Hospital and the local branch of the Surgical Aid Society; 5 guineas to the Dental Hospital; 4 guineas to the Brighton Dispensary (Lewes-road Ward); 2 guineas to the Sussex Homœopathic Dispensary; and 35s. to the Edward-street Medical Mission.

THE MEDICAL LAW-STUDENT.

To the Editor of THE LANCET.

SIR,—"Legal" will not find very great difficulty in reading for the Bar examinations. I accomplished the task a few years ago whilst leading a very busy life professionally and otherwise. In addition to my ordinary professional work, which was very heavy, I was a member of the city council and board of guardians, taking some very responsible positions in both. For a man in active work it is advisable to take the examinations piecemeal. I read without the aid of a correspondence coach; I tried one, but dropped the system at once, as I found it useless. When I was ready for an examination I generally went to London for four or five days previous to the examination day for a thorough revision of the work. During the time I was reading I discarded every other form of recreation; my spare moments were utilised, and working with me had to be continuous, because when a man reaches 40 he finds his brain is not so retentive. I am, Sir, yours faithfully,

Leeds, June 13th, 1910. A. HAWKYARD.

To the Editor of THE LANCET.

SIR,—Having read for and been called to the Bar whilst carrying on a busy general practice, I write to say that it is quite a practicable thing to do. Attendance at lectures is not compulsory (unless there have been any recent regulations on this point), but in the case of the second examination (Constitutional Law and Legal History) such attendance is very advisable, or at least a copy of the lectures as delivered should be obtained from a fellow student; this can easily be done, as the lectures are delivered sufficiently slowly to be easily reported verbatim. No systematic coaching is necessary, but an excellent plan is to get a coach to advise as to the course of reading and to spend an occasional hour with him subsequently, especially as the examinations draw near. The coach will advise as to the special subjects likely to be dealt with in the examinations, and a good deal of unnecessary reading will be thus avoided. I will give your correspondent any other information with pleasure if you care to put him in communication with me. I am, Sir, yours faithfully,

June 15th, 1910. E. S.

CLIMATIC AND OTHER CONDITIONS OF LIBERIA.

IN his annual report to the Foreign Office, just issued as a Parliamentary paper, Mr. M. Y. H. Parks, British Vice-consul in Liberia, the negro republic of West Africa founded by the American Colonisation Society in 1820, observes that the climate is equatorial, but that small as the country is in geographical extent (about 8000 square miles) it has not a uniform climate over its surface. There is a perceptible dry season between December and April, during which vegetation becomes very parched, and some cool nights during this time of the year are not infrequent. Nine months of the year the tendency in the coast lands is towards excessive humidity, with all its consequences of rust and mould, and the drying influence of the Harmattan wind, though so extreme, is scarcely a remedy for so destructive an element. The most unhealthy months appear to be September and October, nearing the end of the rainy season, which commences in May. The average temperature may be said to range on the coast from about 74° at 6 A.M. to 88° at noon. The average annual rainfall is about 150 inches. Owing to the want of sanitation, the difficulty of obtaining fresh food, and the extreme humidity, the climate is, apart from the prevalence of malarial fever, both enervating and dangerous to Europeans, though they could, no doubt, with annual trips to cooler and healthier climes, live in the country for some years provided they were always moderate in their manner of living. There are no reliable statistics as to population, but there are believed to be from 1,500,000 to 2,000,000 natives. The British population of white people numbers only about 50 persons, mostly males. English is the official and recognised language of the country, but there are, of course, many native dialects. Transport facilities are of the most primitive kind. There are no railways and all transport is done by native carriers. There are no roads in the country, but the interior is intersected by numerous tracts, some of which are barely a foot wide. Many medicinal plants growing in an uncultivated state are made use of by the natives, as well as by the Liberians, for domestic purposes, and a few varieties have found their way to foreign markets, where they have been proved to be of good commercial value. There are no druggists' or chemists' stores in Liberia, and the people depend upon their private supplies imported from Europe; further, there are no hospitals or dispensaries to create a demand for such goods. The only European medical practitioner is the Government medical officer, who is allowed to carry on private practice so far as it does not interfere with his official duties.

THE LUNACY FEES AND THE RESIDENT MEDICAL OFFICER.

WE published a letter in our last week's issue, signed "M.B., C.M. Edin.," under this heading in which exception was taken to the fact that the Board of Guardians of the Poor of the Parish of St. Giles, Camberwell, now directs that lunacy fees in excess of £60 per annum should be repaid to it by its resident medical officer at the Constance-road Workhouse. This week another correspondent sends us a copy of the application form for this appointment. In this document it is shown that in addition to the £200 salary, lunacy fees up to a total of £60 per annum are paid "after the rate of £15 per quarter, provided that the fees in respect of such a period amount to that sum." Our correspondent draws attention to the fact that the resident medical officer may get less than £60 from the lunacy fees, even while the guardians are saving more than £100. He says that at the Constance-road Workhouse from 200 to 300 cases of lunacy pass through the workhouse yearly, but the fees might none the less amount to less than £15 in one quarter, while they came to a much larger total in other quarters. We do not know if the guardians have planned the quarterly payments in this way, but if the circumstances are correctly stated it does not seem a very straightforward arrangement. Guardians must not, however, be blamed for economy if their economy is attended by fair treatment of employees.

POST-GRADUATE WORK IN VIENNA.

To the Editor of THE LANCET.

SIR,—Can any of your readers tell me where I can get information relating to post-graduate work in Vienna, fees, and cost of living?

Yours truly,

June 13th, 1910. LEICESTERSHIRE.

*** Vide THE LANCET, June 11th, 1910, p. 1621.—ED. L.

"WISE WOMEN" OF ANCIENT IRELAND.

IT appears that the "wise woman" is still to be found by those who know where to search among the Somersetshire and Devon peasants. She is probably of Celtic origin. In Camden's "Britannia" is a curious account of the manners and customs of the Irish of the time of Queen Elizabeth, who, under the designation of "Wild Irish" or "Mere Irish," were a constant source of bewilderment to our ancestors. We read in this description, for the facts of which Camden professed himself indebted to Good, a Limerick schoolmaster in holy orders, educated originally at Oxford, that the Celtic Irish think that witches "have peculiar charms for all evils, shared and distributed among them; and therefore they use them according to their several gifts and endowments. They begin and conclude their incantations with a Pater Noster and Ave Maria. When any gets a fall, he springs up, and turning about three times to the right, diggs a hole in the ground with his knife or sword, and cuts out a turf; for they imagine there is a spirit in the earth. So that in case he grows sick within two or three days after, they send one of their skill'd women to the place, where she says, I call thee P. [a person not specified] from the east, west, south and north, from the groves, the woods, the rivers, the fens, from the fairies, red, black, white, &c. And after some short ejaculations, she returns home to the sick person, to see whether it be the disease Esane (which they imagine is inflicted by the fairies), and whispers into his ear a short prayer and a Pater Noster; after which she puts some coals into a pot of clear water, and then passes a better judgment upon the distemper than many Physicians can do." The modern "wise women" seem to have lost their skill in diagnosis.

METEOROLOGICAL CONNEXIONS.

AT the monthly meeting of the Royal Meteorological Society on Wednesday afternoon last, a paper was read from Mr. J. I. Craig, of the Egyptian Survey Department, Cairo, entitled "England, Abyssinia, the South Atlantic; a Meteorological Triangle." The idea that there may be an organic connexion between the annual or seasonal total of rainfall in Western Europe and the amount of the Nile flood is no new one, for in 1882 Professor Balfour Stewart gave reasons for claiming such a connexion between the flood of the Nile and the flow in the Thames. More recently Colonel H. E. Rawson has indicated a connexion between the weather in South Africa and that in Africa north of the Equator, and in particular the Nile flood. Dr. G. T. Walker has found a connexion between the monsoon rainfall in India and pressure six months previously in Argentina and Sir Norman Lockyer has proved the existence of an inverse barometric relationship between India and Argentina. Dr. W. N. Shaw has also drawn attention to certain correspondences between the velocity of the wind at

St. Helena and the intensity of rainfall in the South of England, and pointed out that in the steady current of the south-east trade-wind we may expect to find evidence of the throbbing of the aerial pulse consequent on the greater or smaller supply of solar radiation that reaches the earth and is transformed into kinetic energy. Within the last few years an organised meteorological service has been started in Egypt, and the results obtained therefrom have enabled Mr. Craig to carry out this investigation more closely. He finds that there is a distinct tendency for the south-east trade-wind of the South Atlantic to divide into two branches, the first continuing the general northward movement, and the second turning to the right and moving across into the interior of Africa. He concludes that the moisture for the Nile flood comes from the South Atlantic and that an increase in the velocity of the current will show itself in a proportional increase of the flood. There are too many gaps in the velocity records for the summer months to allow of a statistical test being applied, but it is not improbable that an intensification of the trans-African current is connected with a similar intensification of the south-east trade-wind of the Atlantic, which, as Dr. Shaw has shown, is not improbably connected with an increase of rainfall in the South of England.

A WARNING.

To the Editor of THE LANCET.

SIR,—I wish to warn your readers that a man is going about the West-End saying he has been injured by falling over a loose coal-cellar plate in the pavement, and claiming damages for loss of work. I shall be glad to know if any others have been made the subject of a similar attempt at blackmail. If so, prompt measures must be taken against this kind of fraud.

I am, Sir, yours faithfully,

ONE WHO DOES NOT INTEND TO BE VICTIMISED.

June 14th, 1910.

NAUHEIM BATH TREATMENT.

A MEDICAL man writes: "Will any reader kindly say what is meant by the Nauheim bath treatment and how it can be carried out at home?"

THE death occurred at Keymer, near Brighton, on Saturday, June 11th, of Mr. George Prentis Shepherd, at whose expense the convalescent home in Brighton-road, Worthing, was built and endowed in memory of his wife. The home is in connexion with the Royal Surrey County Hospital at Guildford, in which town Mr. Shepherd resided for very many years, carrying on the business of a chemist. Mr. Shepherd was born at Maidstone in 1827.

Lex will obtain the information he requires from the secretary of the Law Society, 100, Chancery-lane, London, W.C., or from the Council on Legal Education, 15, Old-square, Lincoln's Inn, W.C.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Sixth Meeting). Re-opened by Dr. W. d'Este Emery, and continued by Dr. W. Camac Wilkinson, Dr. A. C. Inman, Dr. P. Watson Williams, Dr. David Lawson. Sir Almroth Wright will reply.

THURSDAY.

NEUROLOGICAL SECTION (Hon. Secretaries—E. Farquhar Buzzard, Wilfred Harris): at 8.30 P.M.

Pathological Meeting.

Papers:

Dr. Walter K. Hunter (Glasgow): Acute Degenerative Changes in the Nervous System, as Illustrated by Snake Venom Poisoning.

Dr. H. R. Dean: Results of the Examination of the Serum of Idiots by the Wassermann Reaction.

Dr. Farquhar Buzzard and Dr. Hinds Howell: Secondary Growths affecting Spinal Roots.

Dr. Wilfred Harris and Dr. B. H. Spilsbury: Acute Cerebral Softening due (?) to Venous Thrombosis.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.C.

TUESDAY.—8.15 P.M., Dr. H. W. Hake: On Ferro Silicon with Special Reference to the Poisonous Gases Liable to be Evolved Therefrom.—Dr. C. Mercier: The Lunacy Certificate and the Liberty of the Subject.

ROYAL STATISTICAL SOCIETY, Rooms of the Royal Society of Arts, John Street, Adelphi, W.C.

TUESDAY.—5 P.M., Dr. T. H. C. Stevenson: Suggested Lines of Advance in English Vital Statistics. 6.30 P.M., Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. F. W. Andrewes: The Behaviour of the Leucocytes in Infection and Immunity.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Little: Clinique (Skin). 5.15 P.M., Lecture:—Mr. M. Yearsley: The Duty of the General Practitioner towards Deaf Children.

TUESDAY.—4 P.M., Dr. J. Collier: Clinique (Medical). 5.15 P.M. Lecture:—Dr. L. Guthrie: Some Nervous Disorders in Childhood.

WEDNESDAY.—4 P.M., Mr. G. E. Waugh: Clinique (Surgical). 5.15 P.M. Lecture:—Mr. U. Pritchard: Menière's Vertigo.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Museum Demonstration. 5.15 P.M. Lecture—Dr. W. Hill: On the Great Value of the Œsophagoscope in Diagnosis and Treatment (with an Endoscopic Demonstration on Living Subjects).

FRIDAY.—4 P.M., Dr. D. McKenzie: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. R. Lloyd: Anæsthetics.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 3 P.M., Lecture (at Claybury Asylum):—Dr. R. Jones: Treatment of Varieties of Insanity.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Ll. Williams: The Mouth in Health and Disease.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Intestinal Obstruction.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstrations of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Bernstein: Blood Examination (continued).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles).

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie). 4.30 P.M., Demonstration:—Mr. A. H. Pirie: The Treatment of Nævus by Radium and Other Methods.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Dr. A. G. Auld: Pneumotherapy.

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Wells: The Pulse in Heart Disease.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: Retrobulbar Neuritis.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Dr. F. Batten: Nervous Diseases in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture IV.). (Post-graduate Course.)

TUESDAY.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture III.). (Post-graduate Course).
WEDNESDAY.—5.15 P.M., Dr. H. Thursfield: Infant Feeding and Food Diseases, illustrated by cases, specimens, skiagrams, and drawings. (Lecture I.). (Post-Graduate Course.)
THURSDAY.—4 P.M., Lecture:—Dr. Garrod: Demonstration of Selected Medical Cases in the Wards.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture IV.). (Post-graduate Course).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4 P.M., Lecture:—Dr. Young: The Diagnosis and Treatment of Cardiac Irregularities.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY.—3.45 P.M., Lecture:—Dr. Atkinson: Nose.
FRIDAY.—3.45 P.M., Lecture:—Dr. D. McKenzie: Labyrinth.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. E. F. Buzzard: Cases.
WEDNESDAY.—5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Peripheral Nerves.
FRIDAY.—3.30 P.M., Clinical Lecture:—Mr. D. Armour: Surgery of the Nervous System.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. (In the Lecture Room of the Institute).
WEDNESDAY.—6 P.M., Brevet Lieut.-Colonel Sir W. B. Leishman: Anti-Typhoid Inoculation. (Harben Lecture.)

MANCHESTER ROYAL INFIRMARY.
TUESDAY AND THURSDAY.—4.30-5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (22nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (23rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (25th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 15th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 9	29·90	E.	...	123	80	61	63	66	Fine
,, 10	29·72	N.E.	0·24	84	65	60	61	62	Raining
,, 11	29·74	N.E.	0·14	97	68	59	59	61	Overcast
,, 12	29·84	N.W.	...	112	72	60	61	66	Overcast
,, 13	29·82	N.W.	...	106	73	60	60	64	Cloudy
,, 14	30·15	N.W.	...	123	68	50	51	57	Fine
,, 15	30·33	N.E.	...	118	67	52	53	58	Fine

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